Technical Report No. 32-523

Tracking System Data Analysis Report
Ranger 4 Final Report

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The analysis of the Deep Space Instrumentation Facility (DSIF) spacecraft tracking performance during the *Ranger 4* mission is summarized. Included are ground system configurations, station view periods, and a discussion by station and view period of all tracking data; i.e., angular and doppler, taken by the tracking stations. Also presented is a summary of the tracking data which were actually used in determining the spacecraft orbit and the noise statistics of these data.

Author

I. INTRODUCTION

This report summarizes the analysis of the Deep Space Instrumentation Facility (DSIF) tracking performance during the *Ranger 4* mission. It supercedes all previous Tracking Data Analysis reports for this mission.

A. History of Mission

The *Ranger 4* spacecraft, using the *Atlas D-Agena B* booster, was launched from the Atlantic Missile Range (AMR) on April 23, 1962 at 20 hr, 50 min, 15 sec (20:50:15) Greenwich Mean Time (GMT). Based on AMR tracking data, *Atlas-Agena* separation appeared normal, and at *Agena B* first engine cutoff the spacecraft was in a circular parking orbit at an altitude of 185 km and a space fixed velocity of 7.800 km/sec (see Ref. 1). The parking orbit was terminated 254 sec later by *Agena B* second engine ignition. *Agena B* second engine cutoff (at 21:04:15 GMT) concluded all powered flight for the *Ranger 4* spacecraft and represented the time of injection into a lunar intercept trajectory. During this launch to injection phase, the spacecraft was tracked by AMR stations.

Initial acquisition of the spacecraft transponder by the DSIF was made by the Mobile Tracking Station (MTS, DSIF 1) at 21:13:12 GMT. Prior to acquisition by this station, a malfunction had occurred in the spacecraft which affected the Central Computer and Sequencer (CC&S). This conclusion was based on the following: (1) all telemetry channels were in lock at DSIF 1 but no telemetry commutation was occurring and (2) no blips were observed on Channel B-2 at the scheduled time of solar panel extension nor at any of the times when the subsequent CC&S commands were to be given. Because of the malfunctions it was not possible to command the spacecraft and a midcourse maneuver did not occur.

The DSIF continuously tracked the transponder signal from initial acquisition until battery depletion at 07:22 GMT on April 24, 1962. For the remainder of the mission the DSIF stations tracked the capsule beacon signal, except for short periods during which unsuccessful searches were made for the transponder signal. Because of the spacecraft malfunction, a terminal maneuver was not attempted. Lunar occultation, as determined by loss of received signal at Goldstone Pioneer Site (DSIF 2) and Echo Site (DSIF 3), occurred at 12:47:46 GMT on April 26, 1962. DSIF 2 and DSIF 3 continued to listen for the beacon signal until approximately 13:30 GMT. No signals were detected; therefore, it was concluded that the spacecraft impacted the moon and tracking operations ceased. Based on the orbit determined from the transponder data, lunar impact occurred (on the dark side of the moon) at 12:50:00 GMT. The total flight time from injection to lunar impact was 63.76 hr (Ref. 1). Table 1 summarizes the nominal station view periods vs the actual tracking periods.

Table 1. Nominal view periods vs actual tracking periods

Date	DSIF Station	Nominal[a]			Actual		
		Rise, GMT	Set, GMT	View period	Acquisition, GMT	End of track, GMT	Tracking period
April 23-24	1	21:13:45	08:39:19	11h 27m	21:13:19	08:35:20	11h 22m
	5	21:13:45	08:39:19	11h 27m	21:14:37	08:43:20	11h 29m
	4	22:29:19	23:49:19	1h 20m	22:22:00	00:06:00	1h 44m
April 24-25	2	08:34:19	16:58:54	8h 25m	08:32:40	17:05:35	8h 33m
	3	08:28:45	16:58:54	8h 30m	09:00:40[b]	17:07:20	8h 07m
	4	13:59:19	01:54:19	11h 55m	13:52:44	01:58:59	12h 06m
	1	Not scheduled to track					
	5	21:24:49	09:20:13	11h 55m	21:21:35	09:25:11	12h 04m
April 25-26	2	08:56:00	12:47:46	9h 52m	08:47:30	17:48:20	9h 01m
	3	Not scheduled to track					
	4	14:16:19	02:12:19	11h 56m	14:23:00	02:13:06	11h 50m
	1	Not scheduled to track					
	5	21:42:19	09:28:19	11h 46m	21:40:13	09:32:08	11h 51m
April 26	2	08:56:19	12:47:46[c]	3h 51m	08:46:00	12:47:46	4h 02m
	3	08:46:54	12:47:46[c]	4h 01m	08:33:00	12:47:46	4h 15m

[a] Based on 5-deg elevation angle constraint for AZ/EL stations and 90-270 deg hour angle constraint for HA/DEC stations.
[b] Station searched for transponder from 07:48:50 to 09:00:00 GMT.
[c] Spacecraft occulted by moon.

B. System Configuration

The detailed characteristics of the DSIF stations and the spacecraft are given in Appendix A.

1. Ground Station Modes

For the *Ranger 4* mission there were four possible modes of operation of the DSIF. They are identified as Ground Modes and are defined as follows:

GM-1. Ground receiver tracks the transponder signal (960.05 Mc) in the two-way doppler mode, taking both angular and C-2 data. This mode is possible at DSIF 1, 3, and 5 (Johannesburg DSIF Station).

GM-2. Ground receiver tracks the transponder signal (960.05 Mc) in the one-way doppler mode, taking both angular and C-1 data. This mode is possible at all DSIF stations.

GM-3. Ground receiver tracks the transponder signal (960.05 Mc) in the pseudo-two-way doppler mode, taking both angular and C-3 data. This mode is possible with the combination DSIF 1, 4 (Woomera Station), 5, (noncoherent) or DSIF 2, 3 (coherent).

GM-4. Ground receiver tracks the capsule beacon signal (960.15 Mc) in the one-way doppler mode, taking both angular and C-1 data. This mode is possible at all DSIF stations.

2. Spacecraft Modes

The spacecraft modes are defined according to the telemetry system mode for that portion of the mission. They are as follows:

TM-I. From launch to start of midcourse maneuver, approximately 16 hr.

TM-II. Midcourse maneuver, approximately 28 min.

TM-III. Post-midcourse maneuver to end of terminal maneuver, approximately 48 hr.

TM-IV. End of terminal maneuver to bus impact, approximately 40 min.

TM-V. Capsule impact to end of mission, 60 day nominally.

Because of the spacecraft malfunction, the spacecraft stayed in the TM-I mode for the entire mission.

C. *Data Evaluation Techniques*

The Orbit Determination Program (ODP) will determine a spacecraft orbit by converging on the set of initial conditions at injection epoch, which causes the weighted sum of the squares of the differences between the actual observed values and the computed observed values to be minimized. The computational method is a modified weighted least-squares method. In this method, independent data weighting values are determined from the measured effective variances. Whereas in the usual least-squares method, the data points are weighted, independently, inversely proportionally to their measured variances. When determining the effective variance for each data type at each station, consideration is given to the correlation width of all recognized noise sources, the sampling rates, counting times, elevation angles, and range to the spacecraft.

Prior to being put on the ODP input tape, the incoming data goes through a tracking data editing program (TDEP) which rejects gross blunder points, points that are outside of the antenna mechanical constraints, and points with bad teletypewriter format. No attempt is made to unscramble or correct bad format points. Hence, by sacrificing the possibility of utilizing the maximum number of data points there will be a reduction in the sensitivity to blunder points and possible error points that might otherwise have a significant effect on the orbit.

The current policy for weighting data is to assign an initial weight for each data type based on the sample rate, count time, and expected data quality. These weights may be changed (on option) when the sample rate and count time changes or when the residuals indicate periods of extremely good or relatively poor tracking data.

Data evaluation techniques, consistent with the ODP computational methods, have been developed with the goal of isolating and removing systematic errors, and determining the characteristics of tracking data noise statistics; i.e., the RMS and mean values of the residuals (observed minus computed). The pertinent equations used are given in Appendix B. There are essentially two phases in the mission tracking evaluation: in-flight and postflight.

In the in-flight phase, station reports are analyzed to detect any unusual occurrences. Also, transmitter VCO drift statistics are compiled, frequency changes are noted and brought to the attention of the ODP group, and changes in transmitter assignment are evaluated. After the orbit is reasonably well known, observed values are checked against predicted values to determine validity of the tracking data and to detect blunder points before they influence the orbit. Certain parameters such as the doppler system figure of merit (g^2) are computed and used to evaluate the quality of the incoming doppler data. Once the ODP listings are available, the residuals and rejected points are analyzed to detect systematic error sources. The Test Director is informed of all unusual occurrences, and if applicable, corrective action is recommended.

The postflight evaluation phase consists of analyzing all available data pertaining to the DSIF tracking performance. Complete analysis of all residuals, by data type, is made to detect equipment biases, periodic noise which might be attributed to station equipment, and any other systematic errors. The validity of the noise model is checked by least-square fitting the tracking data. All observations are evaluated and compared with preflight calibrations and past performance. All indications of equipment problems and nonstandard occurrences are investigated and recommendations made to the appropriate agencies. New data analysis techniques are investigated and implemented if applicable.

II. PERFORMANCE ANALYSIS

A. Preflight Calibrations

In order to improve the quality of the primary angular data going into the Orbit Determination Program (ODP), it is first corrected for the antenna optical pointing error (OPE). For the angle data stations, DSIF 4 and 5, this error was determined from a series of independent, horizon-to-horizon, star tracks conducted in 1961-1962. A polynomial curve fit was made to the differences between the refraction corrected ephemeris values and the observed values read from the angle encoders. The OPE is then represented by the coefficients of the resulting polynomials. In general, the preflight calibration star tracks are required for two purposes: (1) to detect gross system errors and (2) to test the validity of the correction polynomial. The coefficients used for the RA 4 in-flight computations may be seen in Appendix C.

Experience gained in *Ranger* 3 has shown that the OPE coefficients do not remove all systematic pointing errors. This is reasonable since the RF and optical axis of the antenna are not necessarily the same. That is, the RF axis is a function of the position of the quadripod feed, whereas the optical axis is not. Thus, if there is a quadripod deflection (due to thermal effect and/or gravitational loading) at some given instant of time, the optical error and the RF error would not be the same. Further, the optical refraction and the RF refraction are not the same due to the difference in respective wavelengths. In addition to these effects, the RF pointing error is also a function of feed alignment, received signal-to-noise ratio, and received polarization angle (since the antenna null pattern does not have the same slope at all polarization angles). The RF boresight-vs-polarization-angle test was an attempt to study the RF errors. The test was designed to correlate the optical and RF errors observed at the collimation tower over a range of signal levels and polarization angles. Experience has shown that the results of the test cannot be applied to the in-flight data in a meaningful manner. Hence, for the purpose of describing the RF pointing error the test is inadequate, and a new method for determining the RF antenna calibration is required. However, the tests are required to add to the composite statistical data, and they are an excellent indication of RF system status and autotrack capabilities.

After the completion of the mission, a study was made to improve the coefficients of the correction polynomial. A polynomial curve fit was made to the first pass angular residuals (that is, the difference between the ODP computed values and the OPE corrected values) of DSIF 4 and 5 for both RA 3 and 4. The coefficients of this polynomial were combined with the OPE coefficients. Results of the study show that the total angular error has been reduced to approximately $\pm$ 0.02 degrees in both hour angle and declination. These new coefficients are shown in Appendix C. Use of this method for future missions is being studied.

The following preflight calibration tests were made by the DSIF stations for *Ranger 4*. Numerical results and star track plots may be seen in Appendix C.

1. DSIF 1 (Mobile Tracking Station, South Africa)

A boresight-vs-polarization-angle test was conducted on April 9, 1962. Results compared favorably with those of *Ranger* 3.

2. DSIF 2 (Pioneer Site, Goldstone)

A star track of Alpha Virginis (Spica) was conducted on April 18, 1962. Hour angle residuals compared favorably with previous star tracks. No comment can be made on the declination residuals since the antenna appeared to be locked in declination. A new test was not requested since DSIF-2 is not a primary angle station.

3. DSIF 3 (Echo Site, Goldstone)

Nine short term star tracks were conducted on April 13, 1962. The stars tracked were Alpha Aquilae (Altair), Alpha Lyrae (Vega), Beta Herculis (Antares), Alpha Bootis (Arturus), Alpha Virginis (Spica), Epsilon Ursae Majoris (Alioth), Alpha Leonis (Regulus), Lambda Scorpii (Shaula), and Sigma Sagittarii (Nunki). Results compared very well with the previous star tracks. In addition, a boresight-vs-polarization-angle test was also conducted on April 13, 1962. Results of this test compared favorably with those of *Ranger* 3.

4. DSIF 4 (Woomera)

A horizon-to-horizon star track of Alpha Virginis (Spica) was conducted on April 10, 1962. Based on the results of this track, it was decided to change the declination coefficients of the correction polynomial used for *Ranger* 3. The hour angle coefficients were not changed. On April 14, 1962 a boresight-vs-polarization-angle test was conducted. Results compared favorably with those of *Ranger* 3.

5. DSIF 5 (Johannesburg)

A horizon-to-horizon star track of Beta Corvi was conducted on April 3, 1962. Hour angle residuals did not agree with those seen on previous star tracks from this station; therefore another track was requested. This track (of Alpha Virginis) was conducted on April 12, 1962, and results compared very well with previous star tracks. In addition, a boresight-vs-polarization-angle test was also conducted on April 12, 1962. Results compared favorably with those of *Ranger* 3.

B. Postflight Analysis of Station Performance During Mission

As a result of the spacecraft malfunction, the spacecraft continued to tumble throughout the entire mission with a periodicity of approximately four minutes. This could be seen in both the angular and doppler residuals. Further verification was given by the periodic variation in AGC signal strength levels. In general, the AGC levels were lower than would be expected for a normal mission since it was impossible to change to the spacecraft high-gain antenna. These lower signal levels caused some difficulty in maintaining lock during later passes.

The following is a station-by-station postflight analysis of DSIF tracking performance during the mission. It is based on all available data such as real time tracking data, in-flight station reports, station logs, calibration books, etc. All times listed refer to Greenwich Mean Time (GMT). Residual plots of all data used in the orbit determination, and plots of subsequent data which are of particular interest, are shown in Appendix D. Also included in this appendix is an hourly trajectory listing, by station, from injection to impact. Pertinent equations used in the data analysis are shown in Appendix B. Appendix E contains a mission history of ground station mode versus time and pass, and a history of transmitter VCO frequency during the transponder tracking period.

1. DSIF 1 (Mobile Tracking Station, South Africa)

The transponder signal was first heard at 21:13:12 on April 23, 1962, and one-way acquisition was completed 21:13:19. At this time all telemetry channels, except channel 1, were in lock but there was no telemetry commutation. Two-way lock was not established until 21:28:48 with the first good data being transmitted at 21:30:11. This delay in two-way acquisition was caused by the following:

1. DSIF 5 had indicated good telemetry after acquisition at 21:14:37. This made it appear that DSIF 1 had either equipment problems or that they were on a side lobe. Hence, time was lost in making additional searches for the main carrier.
2. The telemetry channels in lock were very noisy which again made it appear that the station was on a side lobe.
3. When two-way acquisition was attempted, the station two-way doppler indicator did not show good two-way lock. The indicator referred to is the station internal 10-cps oscillator, the output of which is phase modulated in the ground transmitter and sent to the spacecraft. It is retransmitted from the spacecraft and appears at the ground receiver in the output of a phase detector circuit where a maximum positive voltage was considered to indicate a good two-way lock. Subsequent investigation revealed that the output of the phase detector is range dependent. Further, the voltage associated with a good two-way condition could be either positive or negative depending on range. At the time in question the sign of the detector output voltage was negative. Hence, it appeared as though the indicator was not functioning properly.

The transmitter was turned off at 23:05:00 with DSIF 5 acquiring two-way lock at 23:07:00. At 23:38:00 the transmitter was again turned on and two-way lock was completed at 23:40:00. The transmitter was then turned off at 00:06:00 and pseudo two-way lock was completed at 00:07:34. Tracking was continued in this mode until the transponder signal was lost due to battery depletion at 07:22. Unsuccessful searches were made for the capsule beacon signal until 08:35:20. This concluded the first pass. The station was not scheduled to track during subsequent passes.

Angular residuals are large, particularly in azimuth where the error at times is one degree. Also, there still appears to be a hitching problem. However, DSIF 1 angular data is not used in the ODP, hence, these large errors do not affect the computed orbit. A total of 881 C-2 doppler data points were received from this station during the mission. Of this number, 703 data points were used in the orbit determination. The remainder were rejected because of bad data condition, bad teletypewriter format, or they were blunder points. A least-squares technique was used to determine the quality of the raw C-2 doppler data, i.e., the doppler data from the incoming data tape. The standard deviation of the data

taken during the transponder tracking period was determined to be 0.602 cps. For this same period, the ODP computed standard deviation (using a different method) was 0.639 cps. The difference between the two values is most probably caused by using slightly different rejection criteria. Quality of the two-way doppler data taken during this mission compares very well with the data taken during the *Ranger 3* mission (standard deviation = 0.677 cps). The waveform appearing in the C-2 doppler residuals of Fig. D-2 of Appendix D is a result of doppler counter truncation error caused by the round-off mechanism of the doppler counter. Transmitter VCO drift was within the specification of 1 part in 10^8 per 15 min during the entire pass. The VCO frequencies during the two-way doppler tracking period may be seen in Table E-2 of Appendix E. AGC signal strength readings ranged between −118 dbm and −146 dbm.

2. DSIF 2 (Pioneer Site, Goldstone)

The transponder battery was depleted approximately 1 hr and 10 min before the first RA-4 spacecraft view period for this station. Hence, DSIF 2 was confined to tracking the capsule beacon in ground mode GM-4 during all passes.

Initial acquisition of the beacon signal occurred at 08:32:40 on April 24, 1962. At 10:04:49, a comparison of the receiver VCO frequencies between this station and DSIF 3 revealed that both stations had been tracking on a side lobe rather than the main carrier. That is, there was a difference of 38 cycles between the receiver VCO frequencies at DSIF 2 and DSIF 3 which could be accounted for by the receivers being locked on opposite sidebands. The VCO frequency was adjusted and the main carrier was in lock at 10:07:23. Tracking continued normally with the exception of short periods during which the receiver dropped out of lock because of the low signal level (AGC readings ranged from −147 dbm to threshold during the pass). At 15:50:00 it was discovered that the precision bias doppler loop had been out of lock since 14:20:00. Also of interest during the first tracking period was an abrupt boresight shift of approximately −0.01 deg in declination (Fig. D-3). The time of the shift corresponds roughly with the time of local sunrise and could be accounted for by a feed quadripod deflection due to a thermal effect. This same phenomenon had been observed at DSIF 5 during *Ranger* 3, and subsequent tests conducted at Johannesburg (see Ref. 2), verify this conclusion. DSIF 2 data, taken during this and subsequent passes, were not used in the orbit computation. The tracking period was terminated at 17:03:13 when the spacecraft went below the station horizon.

On the second view period, April 25, the beacon signal was acquired at 08:47:30. There was a malfunction of the Coordinate Converter computer and as a result the servo system was operated in the "aided track" mode. Three unsuccessful, 30-min searches for the transponder signal were conducted at 09:30, and 13:00, and 17:30. The receiver dropped lock a total of 39 times during the tracking period because of low signal strength. AGC readings ranged from −142 dbm to threshold. Tracking period was terminated at 17:48:20.

The third view period acquisition occurred at 08:46:00 on April 26, 1962. One unsuccessful, 5 min search for the transponder was made at 09:42:00. Tracking continued normally with the exception of short periods when the receiver dropped lock due to low signal strength. The one-way doppler data taken during this period was not required for computing the orbit; but it was critically needed to verify the orbit which had been computed from the transponder data, and to verify lunar impact. In the equation for determining the doppler shift from C-1 data there are two unknowns, namely, the true capsule beacon frequency and the 30 mc bias oscillator frequency. Therefore, it is imperative that an accurate record of the bias oscillator frequency be maintained, particularly during critical periods. During this pass, analysis showed that the bias oscillator drift exceeded the 1 part in 10^6 per hour specification and was varying somewhat periodically (Fig. D-5). This drift should have been noted in the in-flight station reports, and the bias oscillator frequency should have been monitored at more frequent intervals. As a result of these omissions, the C-1 data was not usable (a plot of this data may be seen in Fig. D-4). The capsule beacon signal was lost at 12:47:46.8 when the spacecraft was occulted by the moon. This time was determined from the station Midwestern analog recording. DSIF 2 continued to search for the capsule signal until 13:30:00. No signal was detected; therefore, it was concluded that the spacecraft impacted the moon. This terminated the tracking period and the mission.

3. DSIF 3 (Echo Site, Goldstone)

The transponder battery was depleted approximately 1 hr and 10 min before the first RA-4 spacecraft view period for this station. Therefore, tracking was confined to ground mode GM-4 during all passes.

From 07:48:50 to 09:00:00 on April 24, 1962, an unsuccessful search was made for the transponder signal. Initial acquisition of the capsule beacon signal occurred at 09:00:40. As previously noted in the DSIF 2 analysis,

it was discovered that the station had been tracking on a side lobe prior to 10:08:48. Two additional and unsuccessful, 30-min searches were made for the transponder signal at 12:30:00 and 15:30:00. During the pass the receiver was periodically dropping lock due to low signal strength. AGC signal strength ranged from −141 dbm to threshold. Data taken during this and subsequent passes were not used for computing the spacecraft orbit. The tracking period ended at 17:04:52 when the spacecraft went below the station horizon.

DSIF 3 was not scheduled to track during the second Goldstone view period.

On the third view period, initial acquisition of the beacon signal occurred at 08:33:00 on April 26, 1962. One unsuccessful attempt was made to acquire the transponder signal at 09:52:00. The same general comments made for the C-1 beacon doppler data in the DSIF 2 analysis are applicable for DSIF 3. Again it must be noted that the 30-mc bias oscillator frequency was not monitored often enough. At 11:55:00, automatic recording of the bias oscillator frequency ceased. Some manually recorded frequencies were submitted after 11:55, but they did not agree with the previous frequencies.

That is, the slope of the manually recorded frequencies was entirely different from that of the automatically recorded frequencies. In the ODP, frequencies were obtained between 11:55 and occultation by extrapolation based on the slope of the automatically recorded frequencies. After this was done, the C-1 data was usable for verifying lunar impact. These results are discussed in Sec. III. Using DSIF 3 data, the capsule beacon frequency drift was estimated to be 1.65 cycles/min during the period 11:25–11:55. Lunar occultation, determined from the analog recording of the receiver functions, occurred at 12:47:46.9. DSIF 3 continued to search for the capsule signal until 13:30:00. No signals were detected; therefore it was concluded that the spacecraft impacted the moon. This terminated the tracking period and the mission.

4. DSIF 4 (Woomera)

The transponder signal was initially acquired in ground mode GM-3 at 22:22:00 on April 23, 1962. At 22:43:00 DSIF 4 acquired the capsule beacon signal and tracked it until 23:00:00. Psuedo two-way transponder tracking was reestablished at 23:00:10. Tracking continued normally in this mode until the spacecraft went below the station horizon at 00:06:00 on April 24, 1962. During this first view period a total of 87 hour angle and declination data points were received at the Jet Propulsion Laboratory (JPL) (C-3 doppler data from DSIF 4 were not used in the ODP since more accurate C-2 data was available from either DSIF 1 or DSIF 5). Of this number, 35 points were used in determining the RA-4 spacecraft orbit. The remainder were rejected because of bad teletypewriter format, bad data condition code, or they were blunder points. The high percentage of rejection (59.8%) is a result of tracking through the spacecraft "turn around" period during which the spacecraft rate is rapidly changing. Angular residuals show the spacecraft tumble; but otherwise they appear normal. Transponder AGC signal strength levels ranged between −113 dbm and −123 dbm with a periodic variation of four minutes.

Prior to the second view period, the transponder battery was depleted. Hence, subsequent tracking was confined to the capsule beacon signal with the exception of short periods when unsuccessful searches were made for the transponder signal. Initial acquisition of the beacon signal on the second pass occurred at 21:21:35 on April 24, 1962. Tracking continued normally except for short periods when receiver lock was dropped because of low signal strength. AGC readings during the tracking period ranged between −139 dbm and threshold. Angular residuals showed a relatively large error (as great as ±.08 degrees), and excessive scatter due to low signal strength. These data were not used in the ODP therefore the errors did not affect the computed orbit. The tracking period was terminated at 01:58:59 on April 25, 1962.

On the third view period, the beacon signal was acquired at 14:23:00 on April 25, 1962. During the pass, three unsuccessful 30-min searches were made for the transponder. The receiver was periodically going out of lock because of low signal strength. AGC readings ranged between −149 dbm and threshold. The tracking period ended at 02:13:06 April 26, 1962. This concluded DSIF 4 participation in the *Ranger 4* mission.

5. DSIF 5 (Johannesburg)

The transponder signal was acquired in ground mode GM-3 at 21:14:37 on April 23, 1962. Tracking continued in this mode until the MTS transmitter was turned off at 23:05:43. DSIF 5 transmitter was turned on at 23:07:00 and two-way lock was completed at 23:07:55. During the period 23:39:54 to 00:06:00, DSIF 1 again assumed the transmitting assignment with this station tracking in the GM-3 mode. At 00:07:00 the transmitter was again turned on and two-way lock was completed at 00:07:54. Two-way lock was lost at 07:21:50 when the transponder battery was depleted. During the trans-

ponder tracking period, DSIF 5 transmitted a total of 18 commands in an unsuccessful attempt to obtain a response from the spacecraft. These commands, and the time that they were sent may be seen in Table 2. The capsule beacon signal was acquired at 08:14:30 and tracked until the spacecraft went below the station horizon at 08:43:20 GMT.

Table 2. Commands sent to *Ranger 4* spacecraft by DSIF 5

Command[a]	Initiated, GMT	Verified[b], GMT
RTC-0	01:52:20	01:53:02
RTC-0	01:53:23	01:54:02
SC-1	01:57:00	01:57:42
RTC-0	02:11:50	02:12:28
RTC-0	02:12:49	02:13:27
SC-1	02:15:00	02:15:40
RTC-5	02:22:00	02:22:40
RTC-5	02:27:00	02:27:40
RTC-5	02:33:00	02:33:40
RTC-5	02:43:00	02:43:40
RTC-5	02:48:00	02:48:40
RTC-0	03:15:00	03:15:41
RTC-3	03:16:01	03:16:40
RTC-0	05:05:10	05:05:50
RTC-0	05:06:11	05:06:50
RTC-3	05:12:00	05:12:40
RTC-0	05:50:00	05:50:40
RTC-2	05:52:00	05:52:40

[a]Complete list of spacecraft ground commands may be found in Ref. 4. Definitions of commands used herein are:
RTC-0: clear command
RTC-2: antenna hinge angle override
RTC-3: antenna switchover
RTC-5: telemetry mode change
SC-1: midcourse maneuver roll duration

[b]Verification by the station read-write-verify (RWV) system.

Note: Above data taken from mission station reports.

For the period 23/21:14:37 to 24/07:22:00 a total of 428 C-2 doppler data points, and 960 hour angle/declination data points were received at JPL. Of this number 377 doppler and 719 hour angle/declination points were used in computing the spacecraft orbit. The remainder were rejected because of bad teletypewriter format, bad data condition code, or they were blunder points. Angular residuals seen in Appendix D show the effect of the new angular correction coefficients. The pointing error in both hour angle and declination has been reduced to approximately ± 0.02 deg. Two-way doppler residuals during the period 24/02:08 to 24/05:04 originally showed a negative bias of approximately -0.2 cycles/sec which could not be accounted for. In a subsequent discussion with T. W. Hamilton, it was discovered that the doppler portion of the ODP was not properly updating the transmitter VCO frequency. A plot of the psuedo two-way doppler residuals may be seen in Fig. D-11. Psuedo two-way doppler are not used in the ODP since more accurate two-way doppler data are available.

Ranger 4 was the first mission for which DSIF 5 had two-way doppler capabilities; hence, the following comments are of particular interest. A least-squares technique was used to determine the quality of the raw C-2 doppler data, i.e., the doppler data from the incoming data tape. Results of the analysis showed that the quality of data, taken during the transponder tracking period, was excellent with a standard deviation of 0.067 cps. This compared very well with the standard deviation of 0.078 cps computed by a different method in the ODP. The difference between these two values is most probably caused by handling the data in hourly blocks (in the least-squares method), and by using slightly different rejection criteria. A study of the first pass transmitter VCO frequency history revealed that the oscillator was very stable; i.e., the frequency drift was well within the specification of 1 part in 10^8 per 15 min. The VCO frequencies during two-way tracking period may be seen in Table E-2.

On the second view period, the beacon signal was acquired at 21:21:35 on April 24, 1962. During the pass, the receiver was periodically dropping out of lock because of low signal level. AGC level ranged between -141 dbm and threshold. An unsuccessful search for the transponder signal was made between 06:20:00 and 06:50:00 on April 25. The tracking period terminated when the spacecraft went below the station horizon at 09:24:11. Angular residuals for the pass were relatively large (as great as $\pm .08$ degrees) and some scatter, due to low signal strength, was observed. Data taken during this, and the subsequent pass, were not used in the ODP; therefore the large errors did not affect the computed orbit.

The beacon signal was acquired on the third view period at 21:40:13 on April 25, 1962. Three unsuccessful, 30-min searches for the transponder were made at 23:08:00, 03:03:00, and 07:00:30. Throughout the pass, the receiver was periodically dropping out of lock because of low signal strength. AGC readings ranged from -147 dbm to threshold. Tracking was terminated at 09:32:08 on April 26, 1962. This concluded DSIF 5 participation in the *Ranger 4* mission. Using C-1 doppler data taken during this pass, the capsule beacon frequency drift was estimated to be 1.54 cycles/min.

III. FINAL ORBIT

Table 3. Summary of data used in orbit determination (see Ref. 1)

Station	Data types	Points received	Points used	Bad format rejection	Blunder points	Bad data condition
		Percent of received	Percent of received	Percent of received	Percent of received	Percent of received
DSIF 1 MOBILE TRACKING STATION	2-way	881	703	39	2	137
	doppler	100	79.8	4.4	0.2	15.6
DSIF 4 WOOMERA	Hour Angle,	87	35	15	2	35
	Declination	100	40.2	17.2	2.3	40.2
DSIF 5 JO'BURG	2-way	428	377	14	11	26
	doppler	100	88.0	3.3	2.6	6.1
	Hour Angle,	960	719	29	53	159
	Declination	100	74.9	3.0	5.5	16.6

The final orbit of the *Ranger 4* spacecraft was determined from the DSIF transponder data only. Data types included two-way doppler, and angular tracking data taken in either GM-1, GM-2, or GM-3. Prior to use in the ODP, the angular data was corrected for the known antenna pointing error which was determined from optical star tracks and inflight data taken during *Ranger 3*. Coefficients describing the error may be seen in Appendix C. A summary of the data used in the final orbit determination, by station and type, is given in Table 3. Both the computed root-mean-squared noise (RMS) and the mean of the residuals for each station is given in Table 4.

The JPL *Ranger* orbit determination program was designed to find, or converge on, the position and velocity vectors at injection epoch which minimized the sum of the squares of the residuals (observed values minus computed values). Hence, the accuracy of the determined orbit will depend on the statistics of the tracking noise, and the statistics of all other error sources such as errors in the physical constants and/or station locations. The possible errors in the spacefixed Cartesian coordinates at reference epoch due to tracking data noise are given in Table 5. These errors or uncertainties were then mapped into the target area using the miss vector B. Conclusions were that the final orbit was accurate to within a 22-km 1-sigma circle in the B plane and 33 sec in linearized time of flight (see Ref. 1). The final orbit was verified by

Table 4. Tracking data noise statistics (see Ref. 1)

Station	Data types	No. of points	Computed rms	Computed mean
DSIF 1	2-way doppler	703	0.639 cps	—0.005 cps
DSIF 4	Hour angle	35	0.009 deg	—0.001 deg
	Declination	35	0.007 deg	—0.002 deg
DSIF 5	2-way doppler	377	0.078 cps	—0.002 cps
	Hour angle	719	0.020 deg	—0.002 deg
	Declination	719	0.012 deg	—0.002 deg

Table 5. Errors in position and velocity vectors at injection based on tracking data noise statistics only

Vector	Component	Error
Position	X	0.290 km
	Y	0.384 km
	Z	0.676 km
Velocity	$\dot{X}$	0.648 m/sec
	$\dot{Y}$	1.242 m/sec
	$\dot{Z}$	2.225 m/sec

using the C-1 data taken by DSIF 3 during the occultation pass.

A complete discussion of the uncertainties due to errors in the physical constants and the miss parameters may be found in Ref. 1. Appendix F contains a listing of the residuals (observed minus computed) upon which the above statistics were based. The converged injection conditions from the final orbit determination may be seen in the trajectory listing in Appendix D.

APPENDIX A

DSIF and Spacecraft Characteristics

Table A-1. DSIF characteristics for *Ranger 4*

Item	DSIF 1 (Mobile tracking station)	DSIF 2 (Pioneer site, Goldstone)	DSIF 3 (Echo site, Goldstone)	DSIF 4 (Woomera)	DSIF 5 (Johannesburg)
1. Antenna type	AZ-EL	HA-DEC	AZ-EL	HA-DEC	HA-DEC
2. Antenna diameter	10 ft	85 ft	85 ft	85 ft	85 ft
3. Maximum angular rate	40 deg/sec	1 deg/sec HA 0.8 deg/sec DEC	2 deg/sec	1 deg/sec HA 0.8 deg/sec DEC	1 deg/sec HA 0.8 deg/sec DEC
4. Antenna gain (960 Mc)	22.2 db	43.5 db	43.5 db	43.5 db	43.5 db
5. Receiver noise figure	6.3 db	0.6 db	1.8 db	1.8 db	1.8 db
6. Transmitter power	25 w	——	200 w	——	200 w
7. Command capability	no	no	yes	no	yes
8. Nominal receiver frequency	960.05 Mc	960.05 Mc	960.05 Mc	960.05 Mc	960.05 Mc
9. Loop noise bandwidth at threshold	20 cps	20 cps	20 cps	20 cps	20 cps
10. Threshold	—155 dbm	—162 dbm	—162 dbm	—162 dbm	—162 dbm
11. Maximum input signal level	—45 dbm	—65 dbm	—65 dbm	—65 dbm	—65 dbm
12. Doppler resolution					
a. Two-way	0.17 m/sec	——	0.17 m/sec	——	0.17 m/sec
b. Pseudo two-way	——	10 m/sec	——	——	——
c. One-way	0.34 m/sec	10 m/sec	0.34 m/sec	10 m/sec	0.34 m/sec
13. Data transmission					
a. Angles-doppler	real time	real time	real time	real time	real time
b. Engineering telemetry	near real time	none	near real time	none	near real time
14. Recorded telemetry	yes	yes	yes	yes	yes

Table A-2. Doppler reference frequencies used at the DSIF stations

DSIF station	Reference frequency
1	One-way operation: 31.0050 Mc[a] Two-way operation: see footnote b
2	31.0100 Mc[c]
3	One-way operation: 31.0050 Mc[a] Two-way operation: see footnote b
4	31.0100 Mc[c]
5	One-way operation: 31.0050 Mc[a] Two-way operation: see footnote b

[a] Obtained in the receiver using 31.0000 Mc from the Gertsch frequency multiplier and the 5.0 kc bias frequency.
[b] The reference frequency is obtained from the transmitter VCO and the 3.33 kc bias frequency.
[c] Obtained from the Gertsch frequency multiplier.

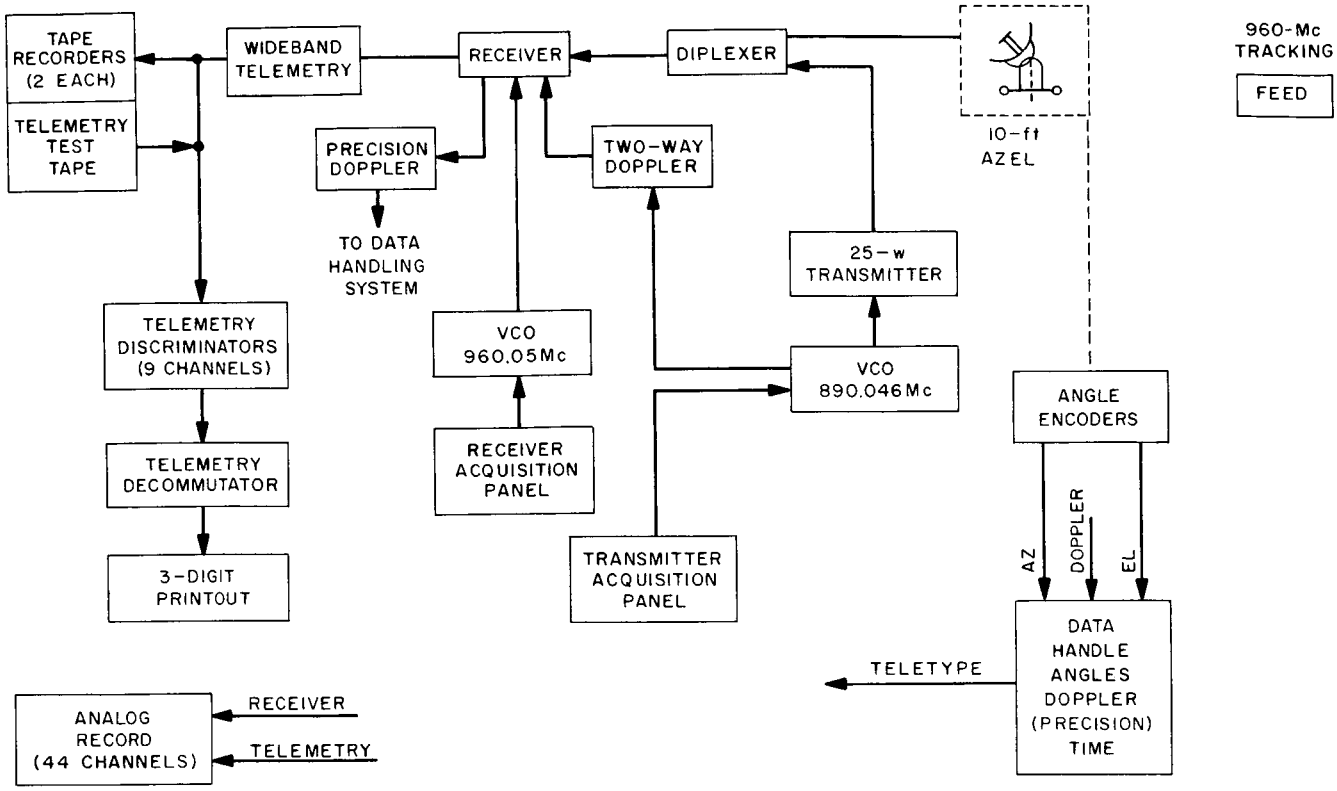

Fig. A-1. Mobile tracking station (DSIF 1)

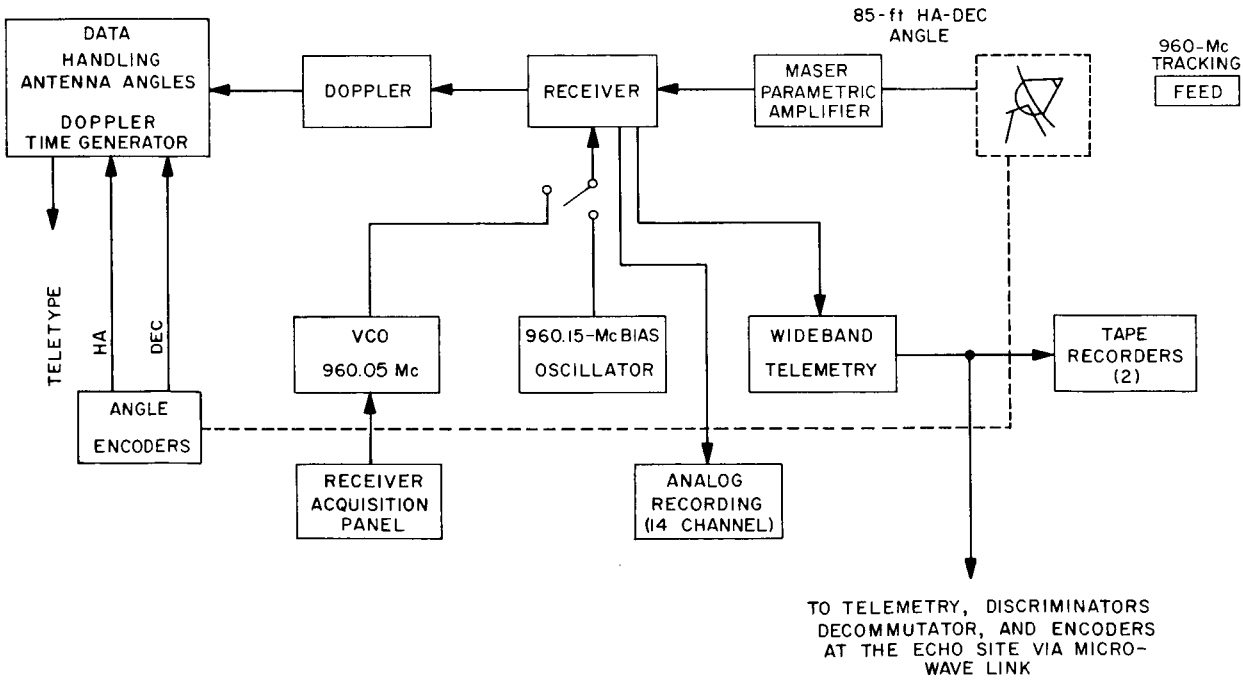

Fig. A-2. Goldstone Pioneer Site (DSIF 2)

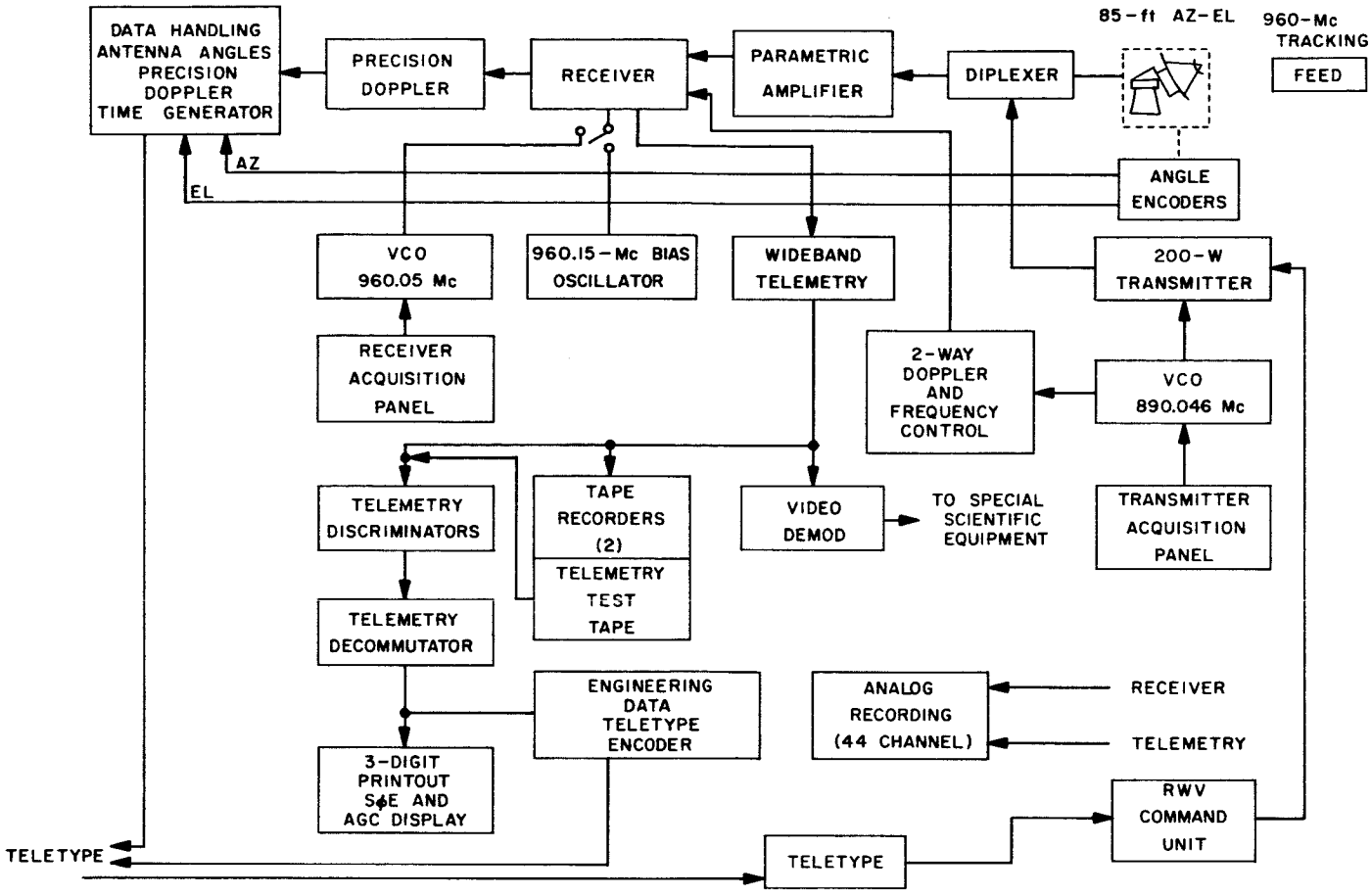

Fig. A-3. Goldstone Echo Site (DSIF 3)

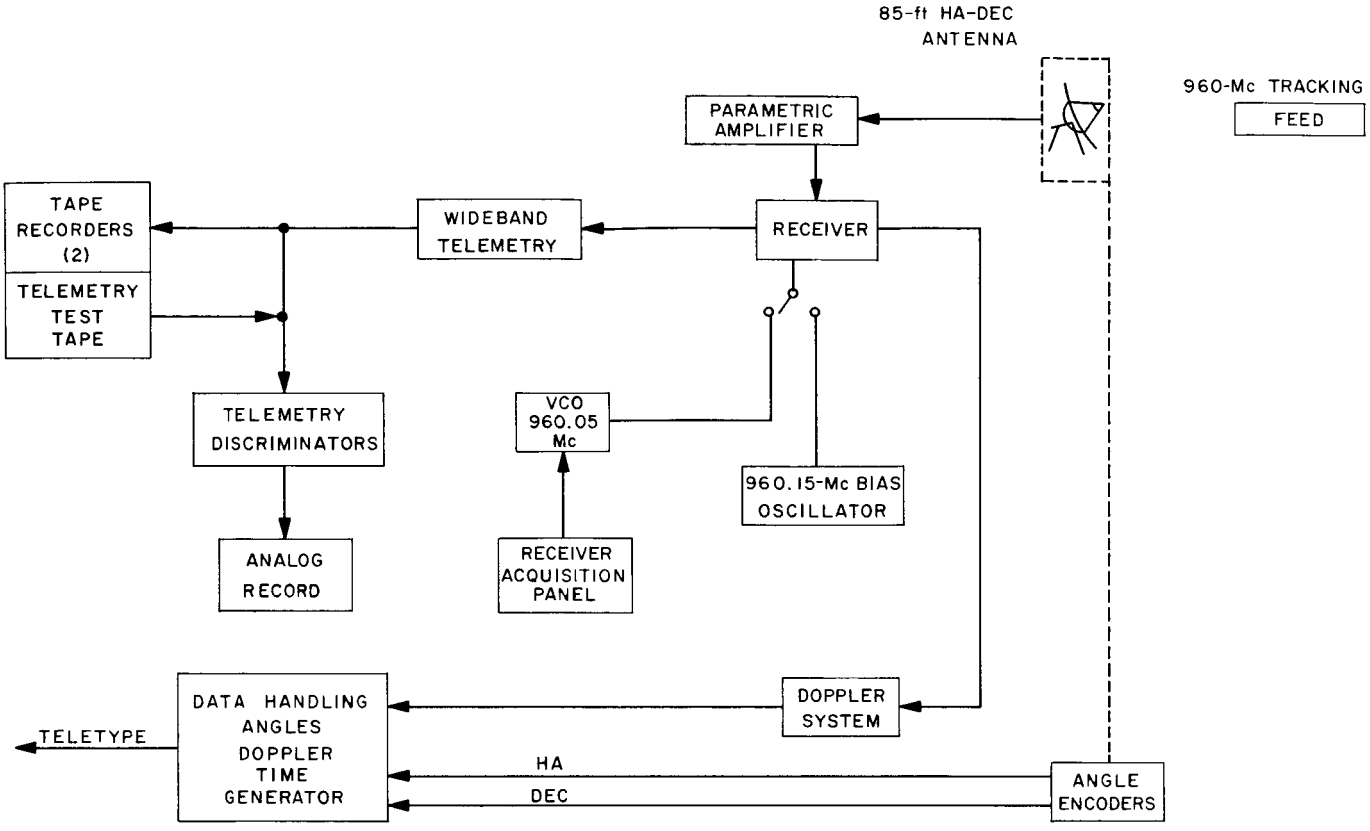

Fig. A-4. Woomera tracking station (DSIF 4)

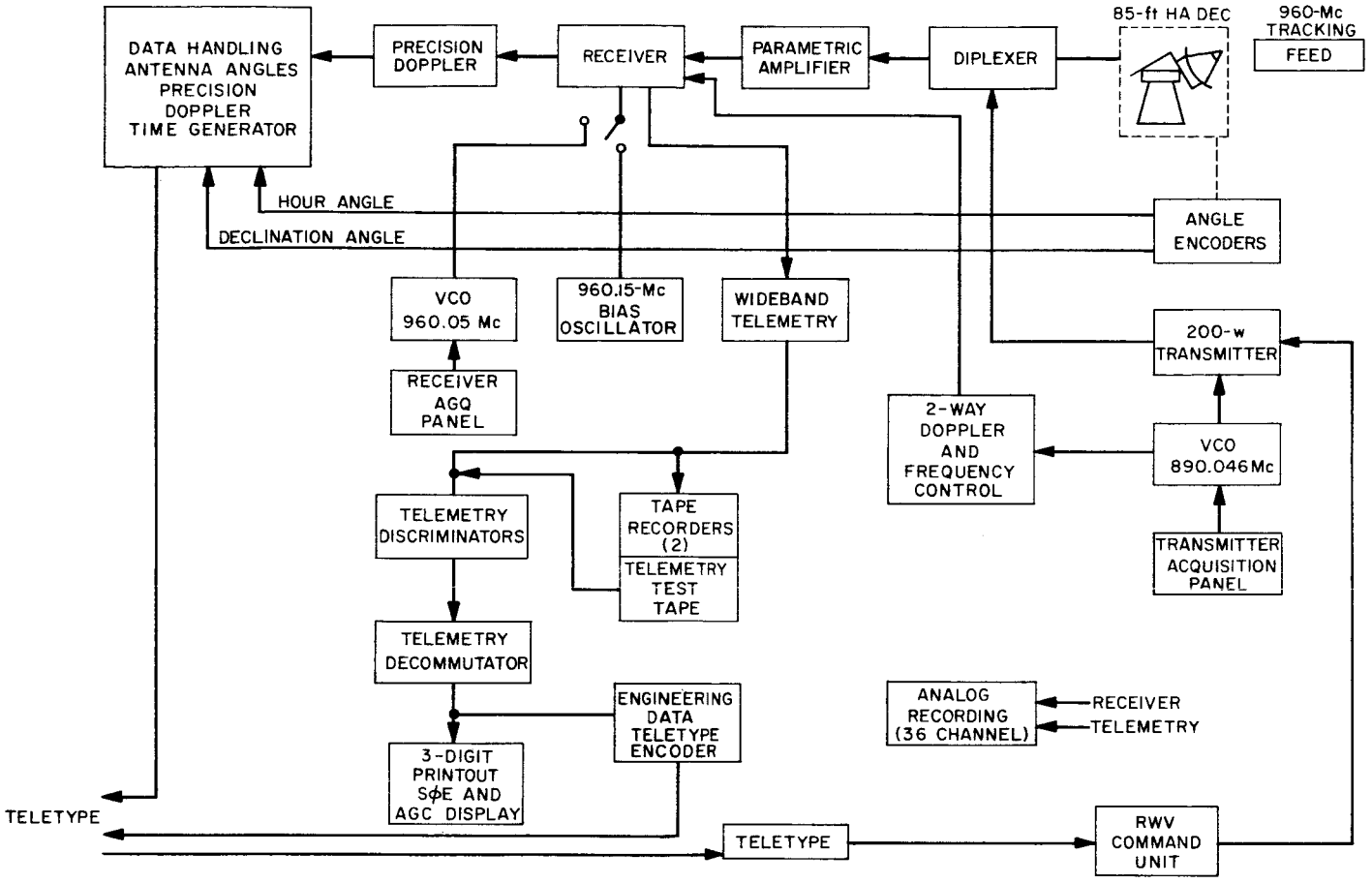

Fig. A-5. Johannesburg tracking station (DSIF 5)

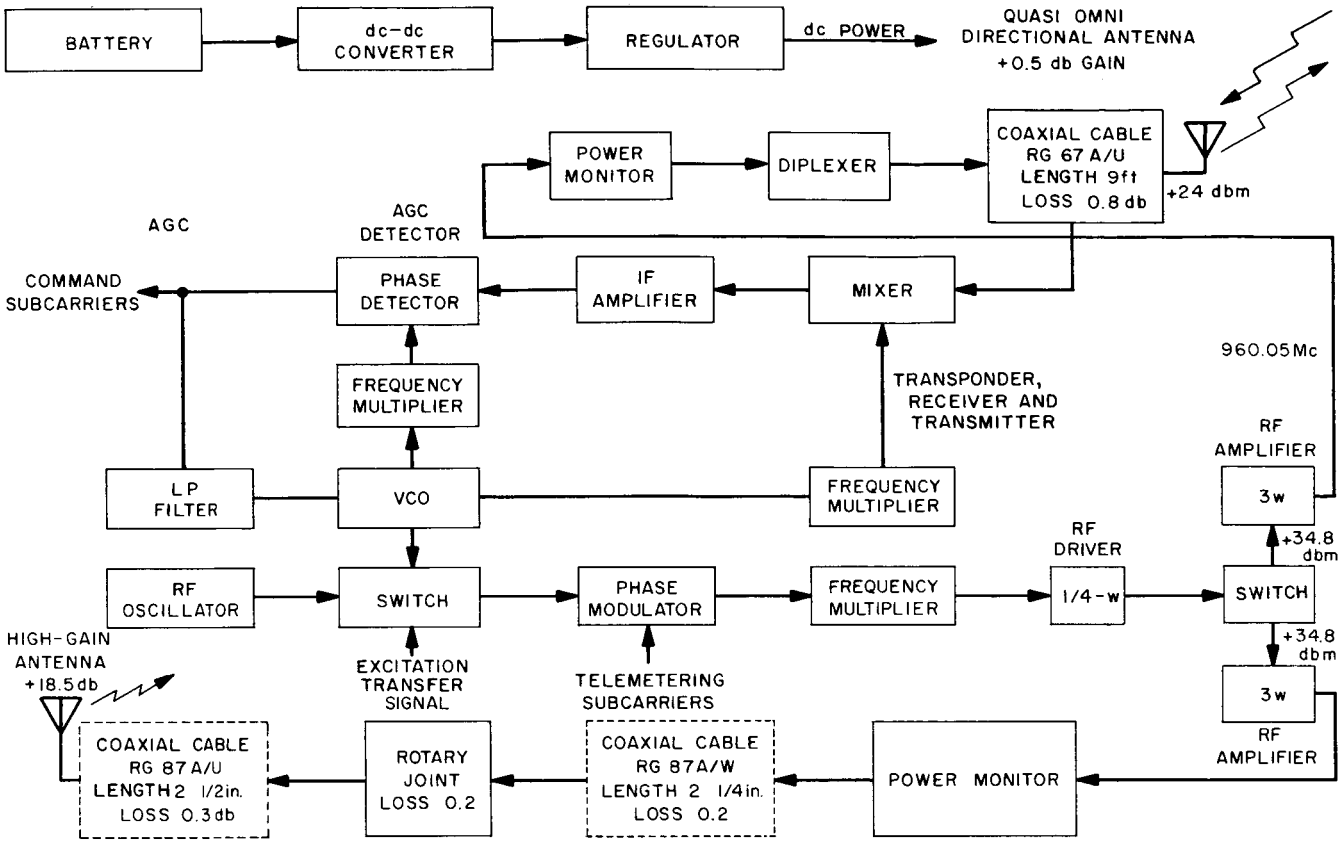

Fig. A-6. Spacecraft communications system

APPENDIX B

Equations Used in Data Evaluation

The following equations, by T. W. Hamilton, are used for in-flight evaluation of the two-way doppler data:

$$\sigma^2 \text{ (2-way doppler)} = (0.40)^2 \frac{10}{T_s} + \frac{1}{3}\left(\frac{1}{T_c}\right)^2 + \left(\frac{R}{4 \times 10^5}\right)^2 \left(\frac{10}{T_s}\right)(g^2)$$

where

g^2 = doppler system figure of merit

R = slant range of spacecraft in km

T_c = doppler averaging time

T_s = sample interval

The first term on the right is an estimate of the variance due to gaining or losing a cycle in either the ground receiver or the spacecraft receiver in a random fashion due to noise, and noise on the signal due to the transmission medium. The second term is an estimate of the variance due to doppler counter round-off, and the third term is the variance due to transmitter reference oscillator drift. The equation used to compute g^2 is given by:

$$g^2 = K\Sigma(\Delta f_r)^2$$

where

$$K = \frac{1}{T_{tot}\,(f_r)^2\,B^*}$$

$B^* = 1.4 \times 10^{-18}$ sec^{-1}

f_r = transmitter VCO frequency

T_{tot} = time interval over which $\Sigma(\Delta f_r)^2$ is determined

The following equations relate the received frequency, the frequency transmitted from the spacecraft, the doppler shift, and the receiver VCO frequencies.

Definition of symbols

f_{RC} = received frequency

f_t = spacecraft transmitted frequency

v = radial velocity component. v_1 spacecraft to DSIF station. v_2 DSIF station to spacecraft

c = speed of light

$\left(1 \pm \frac{v_1}{c}\right)$ = doppler term, spacecraft to DSIF station

$\left(1 \pm \frac{v_2}{c}\right)$ = doppler term, DSIF station to spacecraft

f_v = receiver 31 mc VCO frequency

f_R = transmitter 29.66 mc VCO frequency

f_1 = 30.5565 mc bias oscillator frequency

f_2 = 455 kc oscillator frequency (0.455 Mc)

For DSIF 1

One-way transponder tracking at 960.05 Mc:

$$f_{RC} = f_t\left(1 \pm \frac{v_1}{c}\right)$$

$$f_{RC} = 30f_v + \frac{30}{29\,2/3} f_R$$

$$\therefore\ f_t\left(1 \pm \frac{v_1}{c}\right) = 30f_v + \frac{30}{29\,2/3} f_R$$

Two-way transponder tracking at 960.05 Mc:

$$f_{RC} = f_t\left(1 \pm \frac{v_1}{c}\right) = 30f_v + \frac{30}{29\,2/3} f_R$$

$$f_t = \frac{32}{29\,2/3}\,30f_R\left(1 \pm \frac{v_2}{c}\right)$$

assume $v_1 = v_2$, then

$$\left(1 \pm \frac{v}{c}\right)^2 \simeq \left(1 \pm \frac{2v}{c}\right)$$

and

$$f_v = \frac{f_R}{29\,2/3}\left[31 - 32\left(\frac{2v}{c}\right)\right]$$

Pseudo two-way transponder tracking at 960.05 Mc with DSIF 3 or DSIF 5 transmitting:

$$f_{RC} = f_t\left(1 \pm \frac{v_1}{c}\right) = 30f_v + \frac{30}{29\,2/3} f_{R_1}$$

$$f_t = 30f_{R_2}\left(1 \pm \frac{v_2}{c}\right)\frac{32}{29\,2/3}$$

where

f_{R_2} = the transmitter VCO frequency of DSIF 3 or DSIF 5, then,

$$\frac{32}{29\,2/3} f_{R_2}\left(1 \pm \frac{v_1}{c} \pm \frac{v_2}{c}\right) = \frac{f_{R_1}}{29\,2/3} + f_v$$

For DSIF 2 and DSIF 4

One-way transponder tracking at 960.05 Mc:

$$f_{RC} = f_t\left(1 \pm \frac{v}{c}\right) = \frac{960}{31} f_v$$

Pseudo two-way transponder tracking at 960.05 Mc:

$$f_{RC} = f_t\left(1 \pm \frac{v_1}{c}\right) = \frac{960}{31} f_v$$

$$f_t = \frac{32}{29\,2/3}\, 30f_{R_2}\left(1 \pm \frac{v_2}{c}\right)$$

Then,

$$\frac{32}{29\,2/3} f_{R_2}\left(1 \pm \frac{v_1}{c} \pm \frac{v_2}{c}\right) = \frac{32}{31} f_v$$

where

f_{R_2} = DSIF station transmitter VCO frequency

One-way capsule tracking at 960.25 Mc:

$$f_{RC} = f_t\left(1 \pm \frac{v_1}{c}\right) = 30f_v + f_m$$

$$f_m = f_1 - f_2$$

then,

$$f_{RC} = 30f_v + f_1 - f_2$$

For DSIF 3 and DSIF 5.

One-way transponder tracking at 960.05 Mc:

$$f_{RC} = f_t\left(1 \pm \frac{v}{c}\right) = \frac{960}{31} f_v$$

Two-way transponder tracking at 960.05 Mc:

$$f_{RC} = f_t\left(1 \pm \frac{v}{c}\right) = 30f_v + \frac{30}{29\,2/3} f_R$$

$$f_t = \frac{32}{29\,2/3}\, 30f_R\left(1 \pm \frac{v}{c}\right)$$

assume $v_1 = v_2$ then,

$$\left(1 \pm \frac{v}{c}\right) \simeq \left(1 \pm \frac{2v}{c}\right)$$

and

$$f_v = \frac{f_R}{29\,2/3}\left[31 - 32\left(\frac{2v}{c}\right)\right]$$

One-way capsule tracking at 960.25 Mc:

$$f_{RC} = f_t\left(1 \pm \frac{v}{c}\right) = 30f_v + f_m$$

$$f_m = f_1 - f_2$$

then,

$$f_{RC} = 30f_v + f_1 - f_2$$

The following form of the autocorrelation function is used to determine whether the tracking data noise is of a random nature.

$$\rho(k) = \frac{1}{(N-K)\,\rho\,(0)} \sum_{i=1}^{N-k} r_i\, r_{i+k},\ k = 1, 2, \cdots, (2/3\,N)$$

where

r_i = the ith residual

N = the total number of data points used

$(2/3\,N)$ = the largest integer in $2/3\,N$

K = a dummy index related to time; i.e., $t_k = (t_0 + k\,\Delta t)$, where Δt is the sample interval

$\rho(k)$ = the autocorrelation coefficient of the kth order

APPENDIX C

Results of *Ranger 4* Preflight Calibration Tests

Table C-1 presents coefficients of polynomial representing optical pointing error—used to correct angular data for *in-flight* orbit computations.

Table C-2 presents coefficients of polynomial representing both optical star tracks and postflight analysis of *Ranger 3* and *4*. These coefficients were used for *Ranger 4 postflight* orbit computations.

Table C-1. Coefficients for optical pointing error

Hour angle coefficients		Declination coefficients	
DSIF 4			
A_{00} =	8.55001840-03	B_{00} =	1.34309100-02
A_{01} =	5.45289422-04	B_{01} =	1.34214922-04
A_{02} =	2.48249580-06	B_{02} =	−1.41108901-05
A_{03} =	2.24566914-07	B_{03} =	0.0
A_{10} =	4.27132878-04	B_{10} =	−4.31028233-04
A_{11} =	8.69584098-06	B_{11} =	3.34771543-06
A_{12} =	−6.52073317-07	B_{12} =	1.01895206-07
A_{13} =	−1.59490382-08	B_{13} =	0.0
A_{20} =	2.53268802-06	B_{20} =	−9.56363999-06
A_{21} =	−7.89511508-08	B_{21} =	4.53942058-09
A_{22} =	−7.04116079-09	B_{22} =	2.09578021-09
A_{23} =	−1.23595449-10	B_{23} =	0.0
A_{30} =	−8.38262784-08	B_{30} =	0.0
A_{31} =	1.90513748-09	B_{31} =	0.0
A_{32} =	3.95248319-10	B_{32} =	0.0
A_{33} =	9.57751208-12	B_{33} =	0.0
The useful range of these functions is $-80° \leqq \alpha \leqq +80°, -35° \leqq \delta \leqq +35°$			
DSIF 5			
A_{00} =	9.14878200-03	B_{00} =	2.9860570-02
A_{01} =	1.58528433-04	B_{01} =	1.04434590-04
A_{02} =	6.24530962-06	B_{02} =	−3.64955790-06
A_{03} =	3.43842729-07	B_{03} =	2.01838820-07
A_{10} =	3.95889511-04	B_{10} =	7.39376711-05
A_{11} =	9.36369950-06	B_{11} =	4.55037975-06
A_{12} =	−3.41913978-07	B_{12} =	−9.45727640-08
A_{13} =	−3.76659061-09	B_{13} =	−7.12650861-09
A_{20} =	4.31922333-06	B_{20} =	−9.21918567-06
A_{21} =	−1.03537453-08	B_{21} =	5.89778738-08
A_{22} =	−3.04187273-09	B_{22} =	3.62801844-09
A_{23} =	−1.52368370-11	B_{23} =	−5.16572982-11
A_{30} =	4.82683978-08	B_{30} =	0.0
A_{31} =	6.22459846-10	B_{31} =	0.0
A_{32} =	1.79924034-10	B_{32} =	0.0
A_{33} =	3.31402952-12	B_{33} =	0.0
The useful range of these functions is $-80° \leqq \alpha \leqq 80°, -35° \leqq \delta \leqq +35°$			

Table C-2. Coefficients for optical star tracks and postflight analysis

Hour angle coefficients		Declination coefficients	
DSIF 4			
A_{00} =	4.87852874-02	B_{00} =	5.05083350-02
A_{01} =	5.45289422-04	B_{01} =	1.34214922-04
A_{02} =	2.48249580-06	B_{02} =	−1.41108901-05
A_{03} =	2.24566941-07	B_{03} =	0.0
A_{10} =	2.99712960-04	B_{10} =	−3.23836883-04
A_{11} =	8.69584098-06	B_{11} =	3.34771543-06
A_{12} =	−6.52074417-07	B_{12} =	1.01895206-07
A_{13} =	−1.59490382-08	B_{13} =	0.0
A_{20} =	−3.54187980-07	B_{20} =	−1.32446178-05
A_{21} =	−7.89511508-08	B_{21} =	4.53942058-09
A_{22} =	−7.04116079-09	B_{22} =	2.09578021-09
A_{23} =	−1.23595449-10	B_{23} =	0.0
A_{30} =	−1.78866862-07	B_{30} =	0.0
A_{31} =	1.90513748-09	B_{31} =	0.0
A_{32} =	3.95248319-10	B_{32} =	0.0
A_{33} =	9.57751208-12	B_{33} =	0.0
The useful range of these functions is $-80° \leqq \alpha \leqq +80°, -35° \leqq \delta \leqq +35°$			
DSIF 5			
A_{00} =	5.66230510-02	B_{00} =	9.85199500-03
A_{01} =	1.58528433-04	B_{01} =	1.04434590-04
A_{02} =	6.24530962-06	B_{02} =	−3.64955790-06
A_{03} =	3.43842729-07	B_{03} =	2.01833820-07
A_{10} =	4.36834641-04	B_{10} =	−6.98130410-05
A_{11} =	9.36369950-06	B_{11} =	4.55037975-06
A_{12} =	−3.41913978-07	B_{12} =	−9.45727640-08
A_{13} =	−3.76659061-09	B_{13} =	−7.12650861-09
A_{20} =	1.03365993-06	B_{20} =	−1.07124828-05
A_{21} =	−1.03537453-08	B_{21} =	5.89773738-08
A_{22} =	−3.04187273-09	B_{22} =	3.62801844-09
A_{23} =	−1.52368379-11	B_{23} =	−5.16572982-11
A_{30} =	−1.58618567-07	B_{30} =	0.0
A_{31} =	6.22450846-10	B_{31} =	0.0
A_{32} =	1.79924034-10	B_{32} =	0.0
A_{33} =	3.31402952-12	B_{33} =	0.0
The useful range of these functions is $-80° \leqq \alpha \leqq +80°, -35° \leqq \delta \leqq +35°$			

Results of the *Ranger 4* preflight boresight-vs-polarization-angle test are presented in Table C-3.

Table C-3. *Ranger 4* preflight boresight-vs-polarization-angle test

DSIF station	Signal level, dbm	Mean values of residuals in AZ/HA, deg	Standard deviation of residuals in AZ/HA, deg	Mean value of residuals in EL/DEC, deg	Standard deviation of residuals in EL/DEC, deg
1	100	−0.013	0.068	−0.007	0.057
	110	−0.014	0.069	−0.008	0.056
	120	−0.013	0.069	−0.004	0.058
	130	0.005	0.066	0.009	0.065
3	120	0.004	0.003	0.016	0.002
	125	0.006	0.002	0.015	0.003
	130	0.005	0.002	0.015	0.004
	135	0.005	0.003	0.016	0.003
	140	0.008	0.004	0.016	0.007
	145	0.008	0.007	0.015	0.009
	150	0.017	0.006	0.018	0.007
4	120	0.033	0.011	0.048	0.004
	125	−0.020	0.000	−0.056	0.000
	130	−0.029	−0.031	−0.053	0.016
	135	−0.020	0.000	−0.056	0.000
	140	−0.018	−0.006	−0.016	0.065
	145	−0.020	0.000	−0.056	0.000
	150	−0.019	−0.003	−0.017	0.065
5	120	−0.017	0.011	−0.010	0.015
	125	−0.019	0.012	−0.007	0.005
	130	−0.014	0.018	−0.005	0.008
	135	−0.010	0.025	−0.008	0.017
	140	−0.013	0.037	−0.007	0.022
	145	−0.016	0.050	−0.006	0.031
	150	−0.030	0.083	−0.003	0.052

Note: Residuals are defined as the difference between the optical values and the RF boresight values.

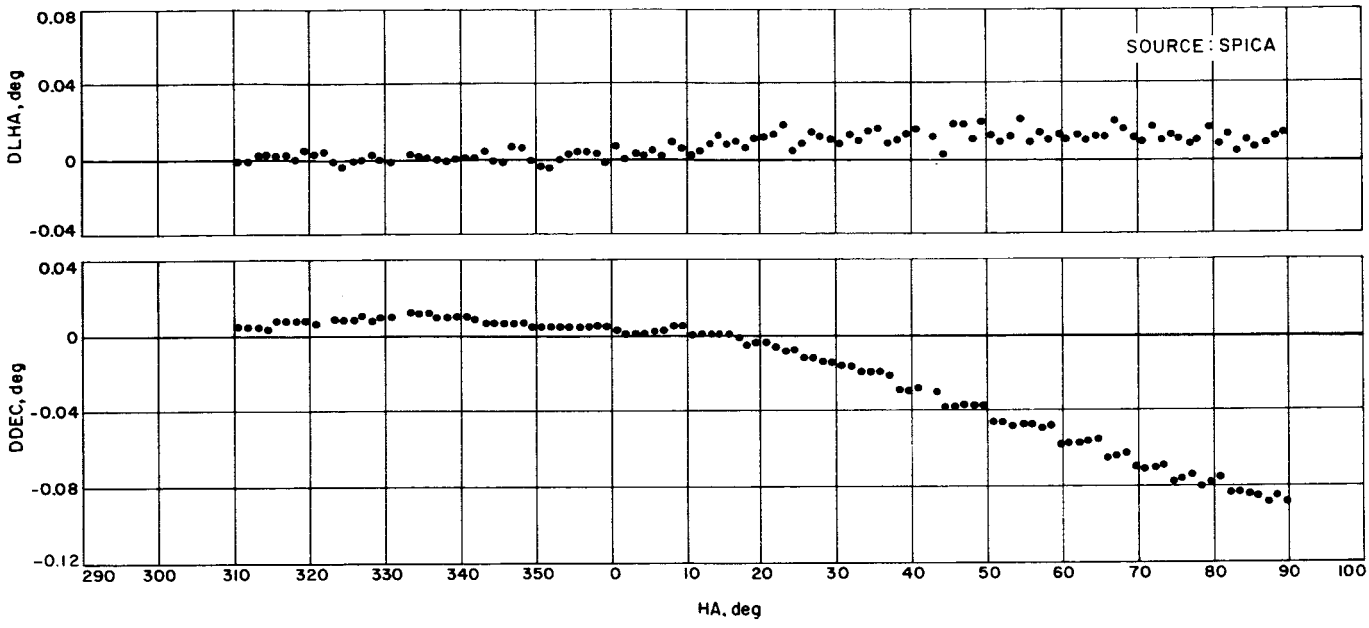

Fig. C-1. Preflight star track results, April 10, 1962 (DSIF 4)

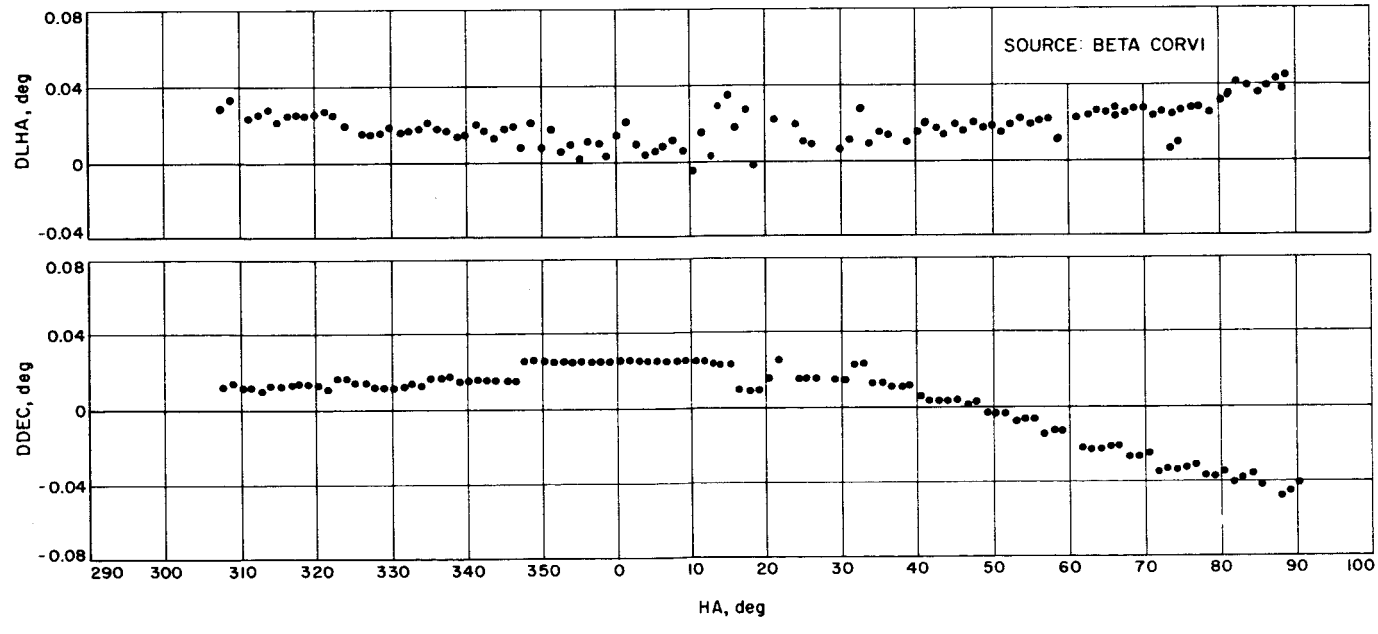

Fig. C-2. Preflight star track results, April 3, 1962 (DSIF 5)

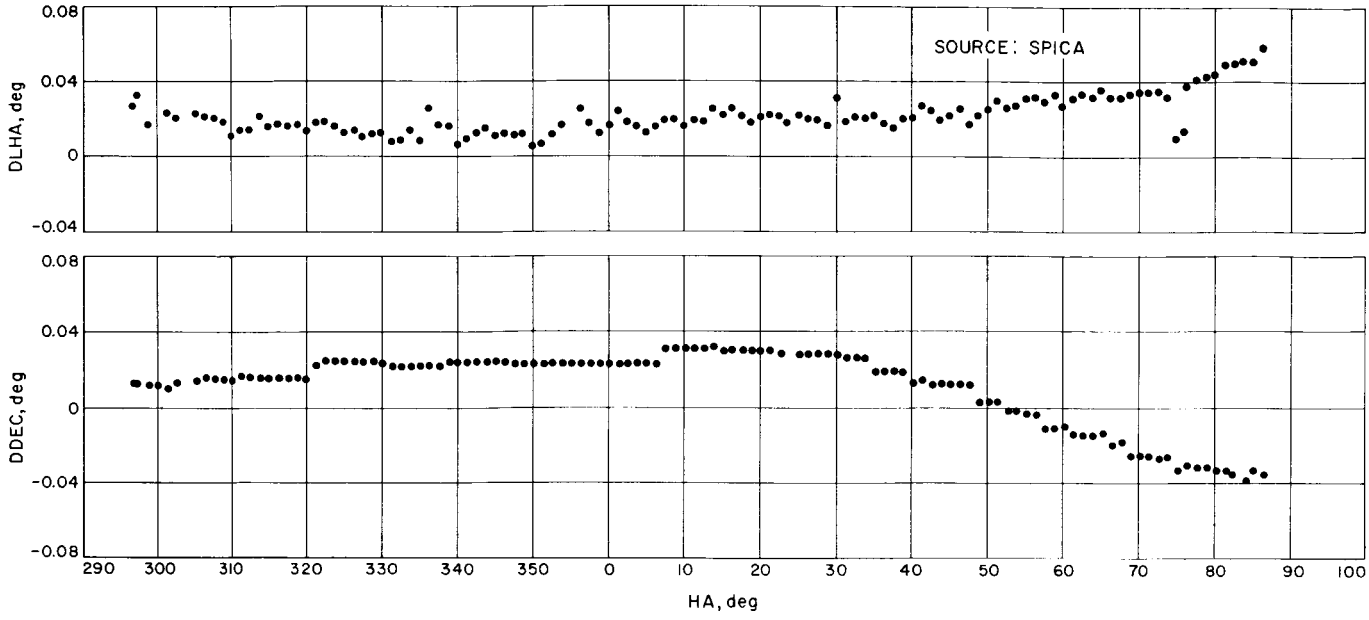

Fig. C-3. Preflight star track results, April 12, 1952 (DSIF 5)

APPENDIX D

Hourly Trajectory Listing From Injection to Impact

Appendix D consists of an hourly trajectory listing from injection to impact. Figures D-1 through D-11 present doppler and angular residuals.

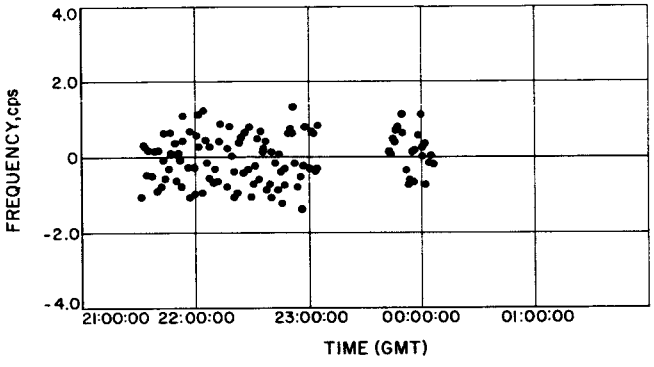

Fig. D-1. C-2 doppler residuals (DSIF 1)

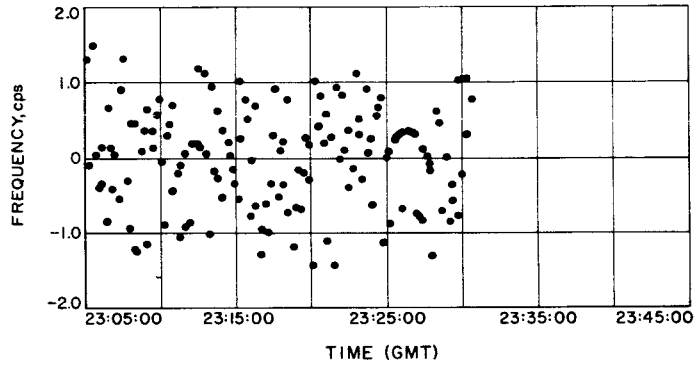

Fig. D-2. C-2 doppler truncation (DSIF 1)

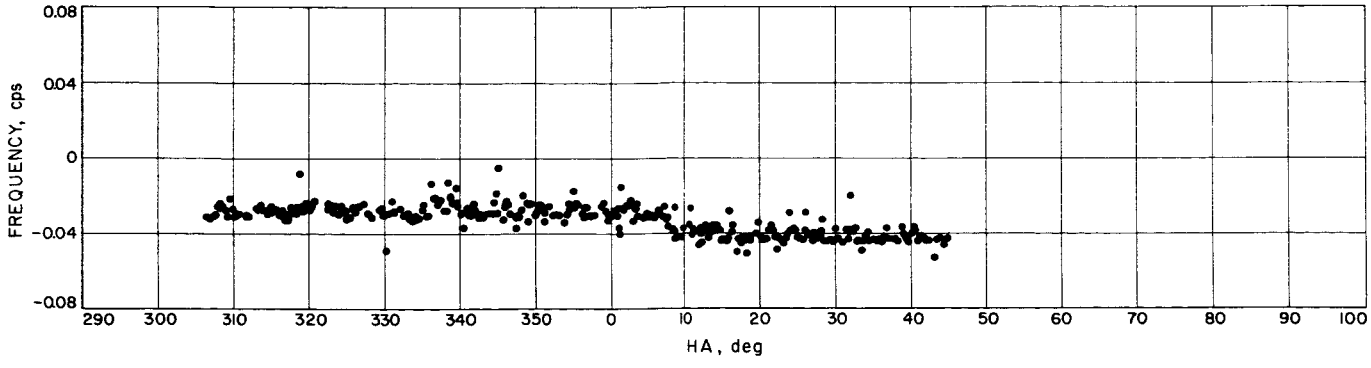

Fig. D-3. RF boresight shift (DSIF 2)

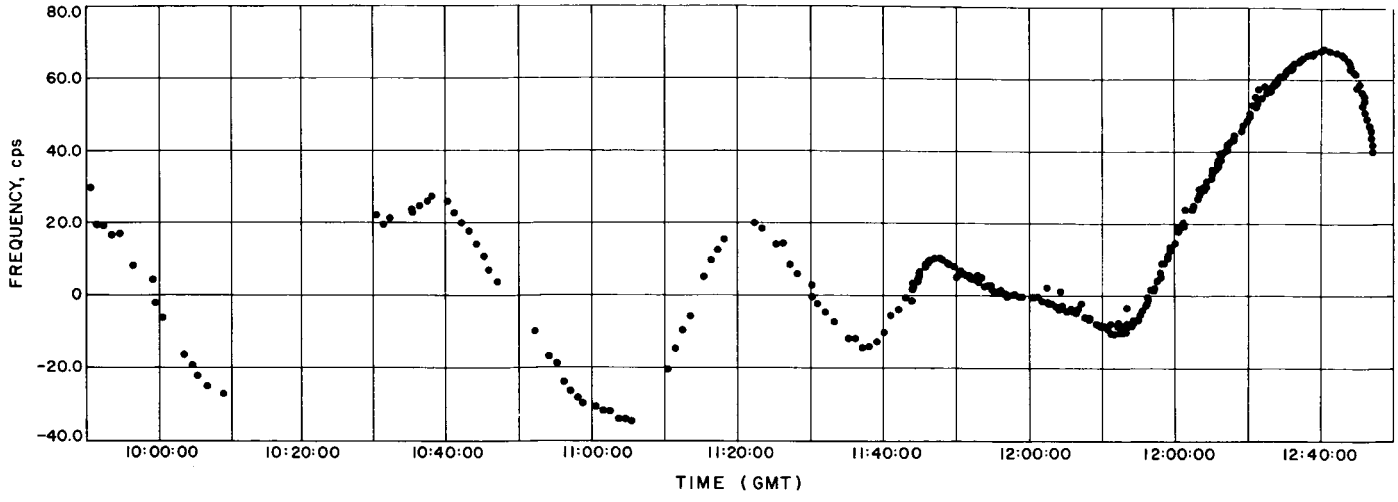

Fig. D-4. C-1 doppler residuals (DSIF 2)

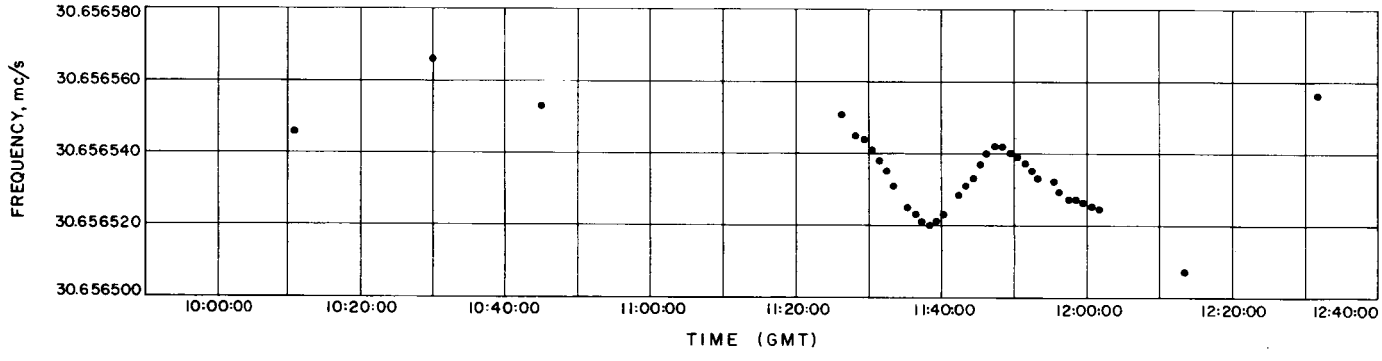

Fig. D-5. 30-Mc bias OSC frequency (DSIF 2)

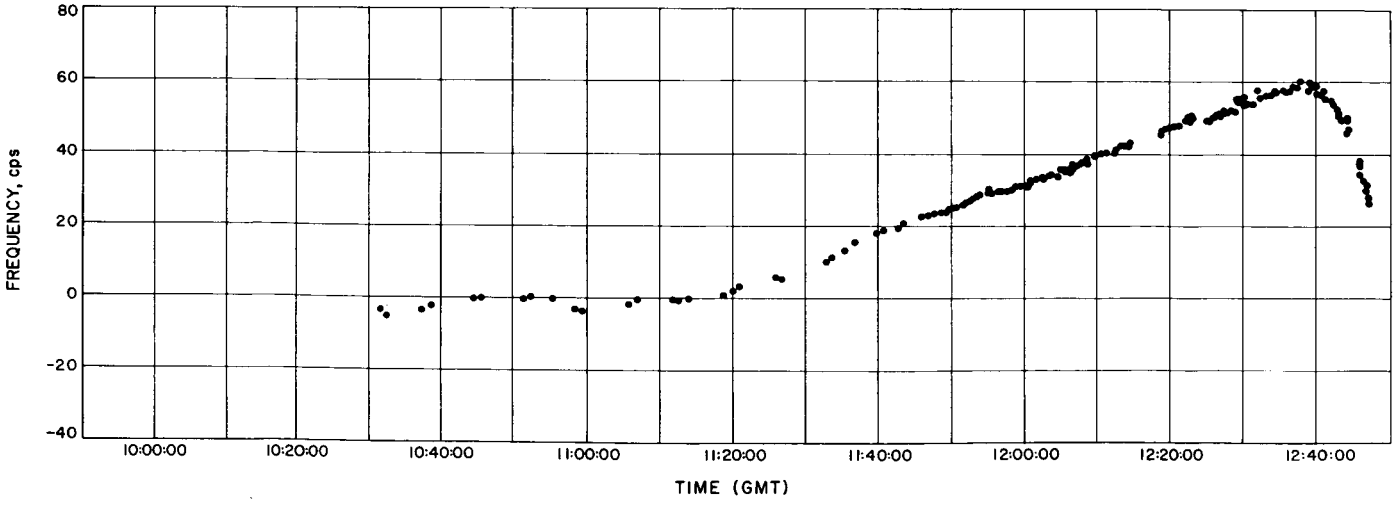

Fig. D-6. C-1 doppler residuals (DSIF 3)

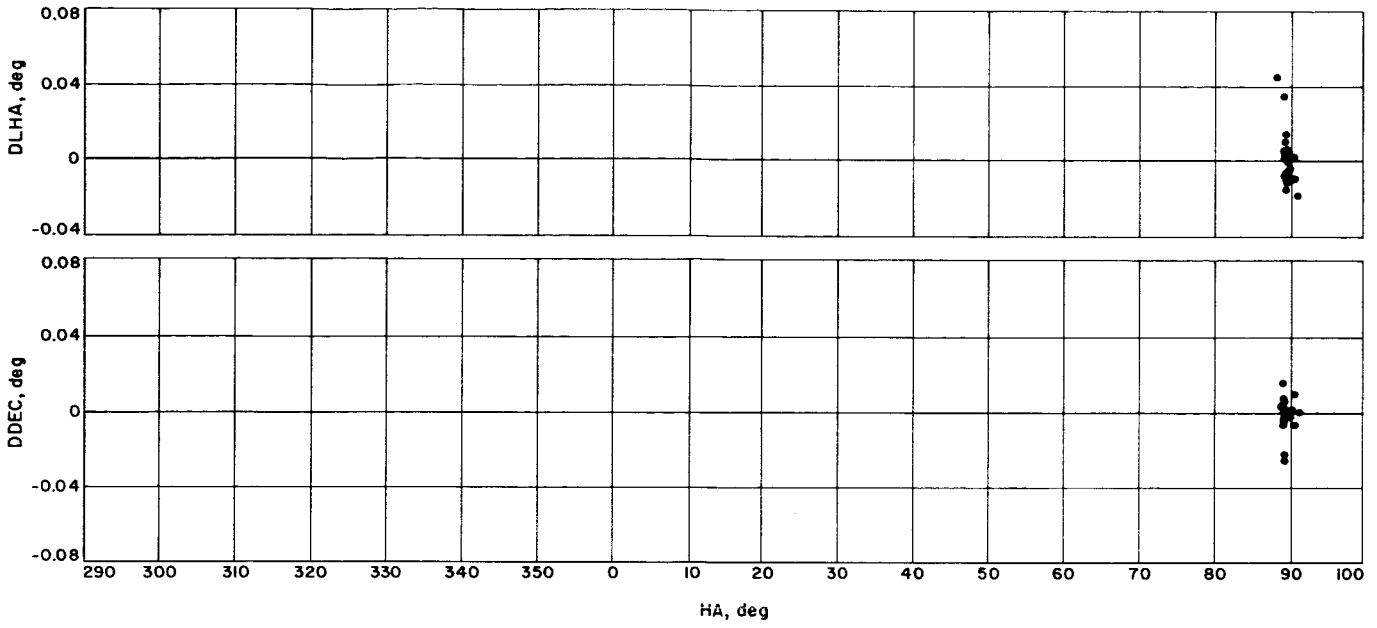

Fig. D-7. Angular residuals vs hour angle (DSIF 4)

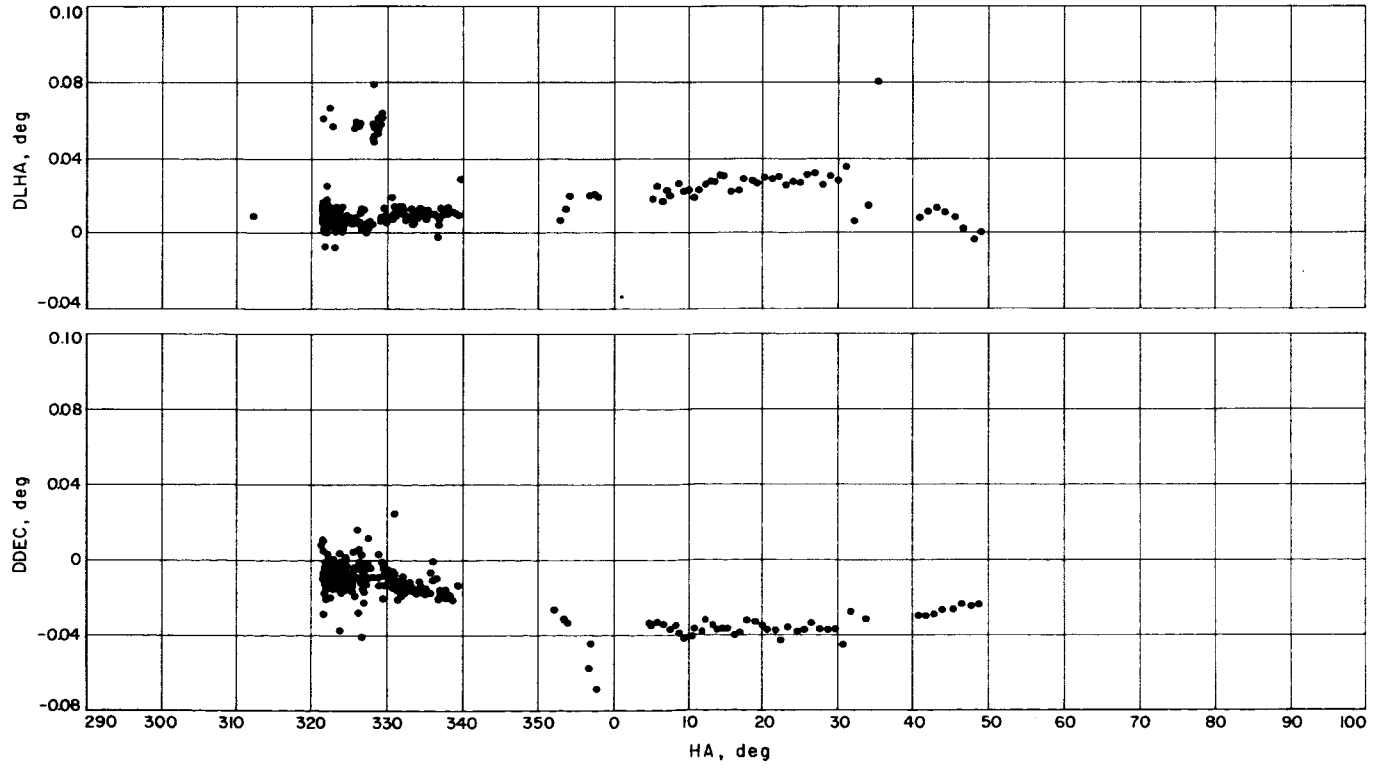

Fig. D-8. Angular residuals vs hour angle (DSIF 5)

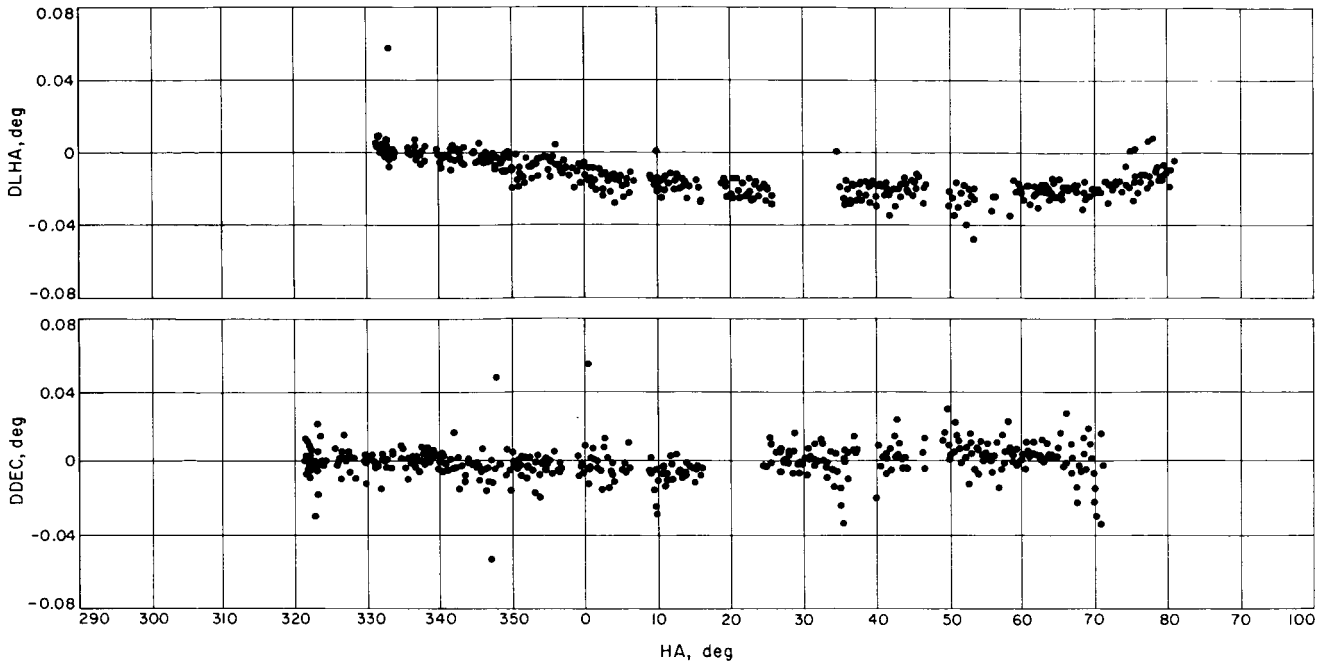

Fig. D-9. Angular residuals vs hour angle (DSIF 5)

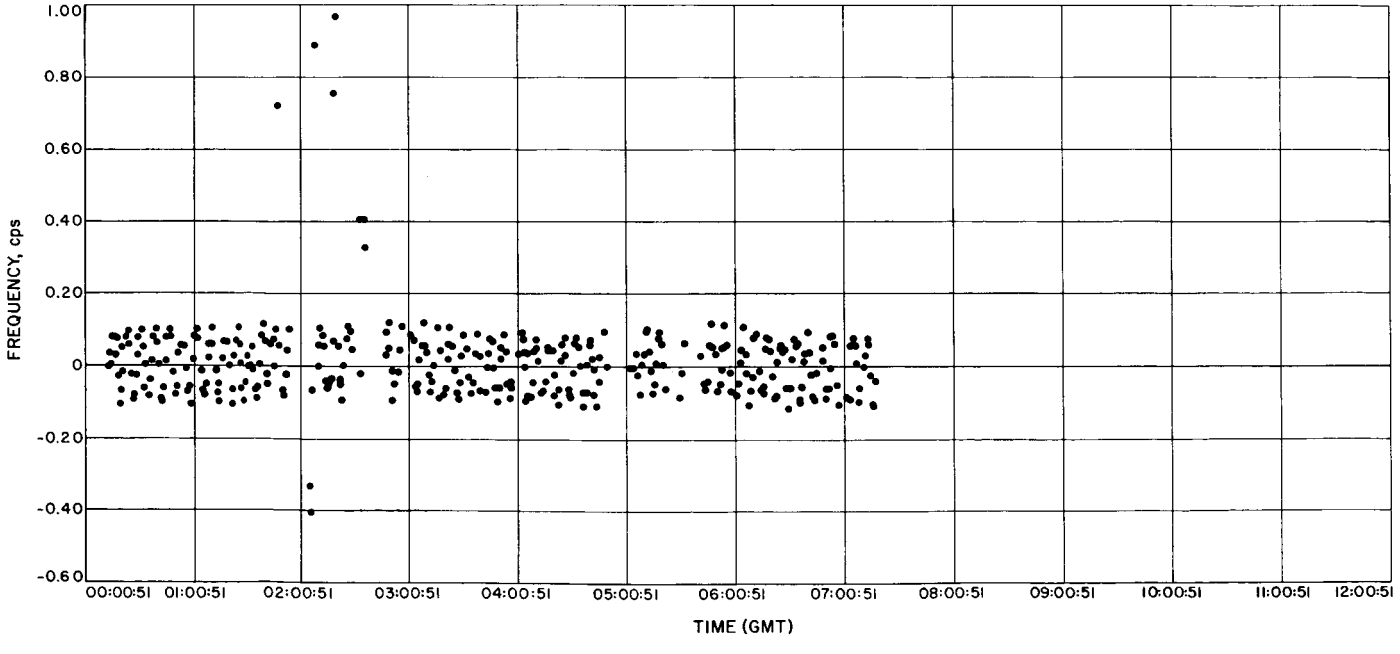

Fig. D-10. C-2 doppler residuals (DSIF 5)

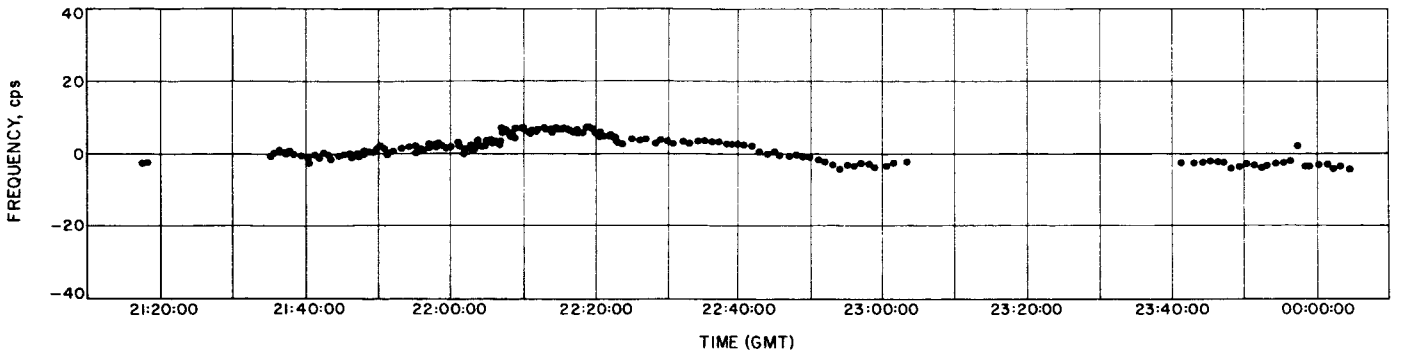

Fig. D-11. Pseudo two-way doppler residuals (DSIF 5)

CASE 1 SPACE TRAJECTORIES 1

RANGER-4 ORBIT 042362 STATION PRINTS BK
EPHEMERIDES WITH VENUS VELOCITIES

GME	.39860320 06	J	.16234500-02	H	-.57499999-05	D	.78749999-05	RE	.63781650 04	REM	.63781650 04
G	.66709998-19	A	.88745998 29	B	.88763998 29	C	.88800998 29	OME	.41780741-02	AU	.14959900 09
GMM	.49007589 04	GMS	.13271544 12	GMV	.32476950 06	GMA	.42977799 05	GMC	.00000000 00	GMJ	.12671060 09

INJECTION CONDITIONS 1950.0 MOON JULIAN DATE 2437778.37799768 APRIL 23,1962 21 04 19.000

GEOCENTRIC XO-.38776202 04 YO .50365212 04 ZO .16576310 04 DXO-.87162901 01 DYO-.48004703 01 DZO-.45872097 01
CARTESIAN GMC .00000000 00 SGC .00000000 00 TO .75859000 05 GHA .16750137 03 GHO .21055684 03

0 DAYS 0 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437778.37799768 APRIL 23,1962 21 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	-.38930893 04	Y	.50261202 04	Z	.16529350 04	DX	-.86979755 01	DY	-.48240301 01	DZ	-.45972462 01
R	.65688828 04	DEC	.14574050 02	RA	.12776034 03	V	.10957222 02	PTH	.16057194 01	AZ	.11616584 03
R	.65688828 04	LAT	.14574050 02	LON	.32025897 03	VE	.10543285 02	PTE	.16687783 01	AZE	.11727733 03
XS	.12585905 09	YS	.75630276 08	ZS	.32795152 08	DXS	-.15823241 02	DYS	.22958091 02	DZS	.99543703 01
XM	-.81001605 05	YM	-.35864251 06	ZM	-.12461998 06	DXM	.99683747 00	DYM	-.13864919 00	DZM	-.11693229 00
XT	-.81001605 05	YT	-.35864251 06	ZT	-.12461998 06	DXT	.99683747 00	DYT	-.13864919 00	DZT	-.11693229 00
RS	.15045252 09	VS	.29606391 02	RM	.38822139 06	VM	.10132037 01	RT	.38822139 06	VT	.10132037 01
GED	.14669099 02	ALT	.19204352 03	LOS	.22350081 03	RAS	.31002181 02	RAM	.25727293 03	LOM	.89771561 02
DUT	.34000000 02	DT	.15000000 02	DR	.30703719 00	SHA	.65584625 04	DES	.12590225 02	DEM	-.18723552 02

GEOCENTRIC CONIC EQUATORIAL COORDINATES

EPOCH OF PERICENTER PASSAGE JULIAN DATE 2437778.37760476 APRIL 23,1962 21 03 45.053

SMA	.30654356 06	ECC	.97858813 00	INC	.29698774 02	LAN	.33487970 03	APF	.14622976 03	RCA	.65636683 04
VH	.11862434 00	C3	-.13003150 01	C1	.71948444 05	SLR	.12986796 05	APO	.60652344 06	TFP	.33947350 02
TA	.32465848 01	EA	.33782285 00	MA	.72353677-02	DAO	.15985688 02	RAD	.12472946 03	MTA	.18000000 03
WX	-.21032427 00	WY	-.44858062 00	WZ	.86864211 00	PX	-.54767205 00	PY	.79007062 00	PZ	.27539724 00
QX	-.80982647 00	QY	-.41780829 00	QZ	-.41184609 00	RX	-.15689440 00	RY	.22633556 00	RZ	-.96133046 00
SXO	-.54767205 00	SYO	.79007062 00	SZO	.27539724 00	TX	.82185123 00	TY	.56970217 00	TZ	.00000000 00
BX	.80982652 00	BY	.41780832 00	BZ	.41184611 00	MX	-.77751032 00	MY	-.46188203 00	MZ	-.42678176 00
B.T	.57011872 05	B.R	-.27030828 05	B	.63095319 05	PER	.28151174 05	OMD	.99809485-02	NOD	-.62537497-02
C3J	-.16758699 01										

0 DAYS 1 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437778.41966435 APRIL 23,1962 22 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	-.11010599 05	Y	-.17287770 05	Z	-.11591394 05	DX	.37217160 00	DY	-.50917753 01	DZ	-.25379841 01
R	.23546989 05	DEC	-.29489661 02	RA	.23750689 03	V	.57014077 01	PTH	.57595637 02	AZ	.93630357 02
R	.23546989 05	LAT	-.29489662 02	LON	.54964454 02	VE	.50621289 01	PTE	.71972709 02	AZE	.97093751 02
XS	.12580206 09	YS	.75712909 08	ZS	.32830981 08	DXS	-.15840870 02	DYS	.22947584 02	DZS	.99498045 01
XM	-.77409567 05	YM	-.35912562 06	ZM	-.12503537 06	DXM	.99871972 00	DYM	-.12974261 00	DZM	-.11383935 00
XT	-.77409567 05	YT	-.35912562 06	ZT	-.12503537 06	DXT	.99871972 00	DYT	-.12974261 00	DZT	-.11383935 00
RS	.15045423 09	VS	.29606137 02	RM	.38806857 06	VM	.10135253 01	RT	.38806867 06	VT	.10135253 01
GED	-.29656693 02	ALT	.17174015 05	LOS	.20849883 03	RAS	.31041276 02	RAM	.25783599 03	LOM	.75293548 02
DUT	.34000000 02	DT	.24000000 03	DR	.48136251 01	SHA	.11698187 05	DES	.12604061 02	DEM	-.18795967 02

RANGER-4 ORBIT 042362 STATION PRINTS BK

OOMJET 1 UNIFORM TIME TAU .00000000 00

R	.23546989 05		LAT	-.29489662 02		LONG	.54964454 02				
MIN	.59999999 02	HA	.97216622 02	DEC	-.22060063 02	ELE	.54537352 01	AZI	.24746265 03		
CKM	.32990156 03	CKC	.26024830 03	CKT	.32990156 03	PSS	.16576381 03	PSM	.32843853 02		
UT	.10000000 01	DHA	-.72260384-02	DDE	-.26551576-02	DEL	.70967950-02	DAZ	.12447882-02		
ET	.99905556 00	RGE	.22070725 05	DRG	.42336748 01	DDR	.10272326-03	SLS	.17897040 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.16576587 03	POL	.35175817 03		
DT	.73620004-01	RF1	.00000000 00	RF2	.00000000 00	BF1	.13643464 06				
ESS1	-.10757040 03	ESS2	-.13117040 03	F1	.11471718 06	F2	.12711568 06	PRA	.22221083 03		
RF	.00000000 00	DOP	-.65788389-06								

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.23546989 05		LAT	-.29489662 02		LONG	.54964454 02				
MIN	.59999999 02	HA	.32301571 03	DEC	-.29467549 02	ELE	.57148777 02	AZI	.10508355 03		
CKM	.34057459 03	CKC	.27092133 03	CKT	.34057459 03	PSS	.14248983 03	PSM	.14971538 02		
UT	.10000000 01	DHA	-.30897785-02	DDE	-.30422061-03	DEL	-.26739291-02	DAZ	.78018599-03		
ET	.99905556 00	RGE	.17935687 05	DRG	.49906877 01	DDR	-.47062414-03	SLS	.17716843 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.14249399 03	POL	.15852611 03		
DT	.59827003-01	RF1	.00000000 00	RF2	.00000000 00	BF1	.13401014 06				
ESS1	-.10576843 03	ESS2	-.12936843 03	F1	.11705920 06	F2	.13196417 06	PRA	.24721150 03		
RF	.00000000 00	DOP	.30140792-05								

0 DAYS 2 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437778.46133102 APRIL 23,1962 23 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	-.84510706 04	Y	-.33110474 05	Z	-.19137916 05	DX	.89835572 00	DY	-.38755427 01	DZ	-.17825849 01
R	.39166106 05	DEC	-.29250880 02	RA	.25568151 03	V	.43594131 01	PTH	.65079385 02	AZ	.84656835 02
R	.39166106 05	LAT	-.29250880 02	LON	.58098108 02	VE	.40123652 01	PTE	.80175079 02	AZE	.28446775 03
XS	.12574499 09	YS	.75795506 08	ZS	.32866794 08	DXS	-.15858492 02	DYS	.22937064 02	DZS	.99452341 01
XM	-.73810904 05	YM	-.35957664 06	ZM	-.12543961 06	DXM	.10005153 01	DYM	-.12081335 00	DZM	-.11073228 00
XT	-.73810904 05	YT	-.35957664 06	ZT	-.12543961 06	DXT	.10005153 01	DYT	-.12081335 00	DZT	-.11073228 00
RS	.15045593 09	VS	.29605884 02	RM	.38791559 06	VM	.10138483 01	RT	.38791559 06	VT	.10138483 01
GED	-.29417072 02	ALT	.32793055 05	LOS	.19349687 03	RAS	.31080374 02	RAM	.25839993 03	LOM	.60816421 02
DUT	.34000000 02	DT	.48000000 03	DR	.39535191 01	SHA	.27463491 05	DES	.12617891 02	DEM	-.18866748 02

OOMJET 1 UNIFORM TIME TAU .00000000 00

R	.39166106 05		LAT	-.29250880 02		LONG	.58098108 02				
MIN	.12000000 03	HA	.87958607 02	DEC	-.25273571 02	ELE	.14405411 02	AZI	.24891389 03		
CKM	.34653941 03	CKC	.27735892 03	CKT	.34653941 03	PSS	.14432366 03	PSM	.12309489 02		
UT	.20000000 01	DHA	.15602993-03	DDE	-.12010288-03	DEL	-.68021010-04	DAZ	-.17794774-03		
ET	.19990555 01	RGE	.37091346 05	DRG	.40105717 01	DDR	-.10603779-03	SLS	.18347952 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.14433189 03	POL	.13972910 02		
DT	.12372339 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.13714918 06				
ESS1	-.11207952 03	ESS2	-.13567952 03	F1	.11402428 06	F2	.12568676 06	PRA	.24650991 03		
RF	.00000000 00	DOP	.67911159-06								

```
CASE  1                                    SPACE TRAJECTORIES                                    3

RANGER-4 ORBIT     042362       STATION PRINTS     BK
JOBJET                  1    UNIFORM TIME     TAU .00000000 00
   R        .39166106 05          LAT      -.29250880 02          LONG      .58098108 02
   MIN      .12000000 03  HA      .32390431 03  DEC    -.29138968 02  ELE     .57907925 02  AZI     .10440647 03
   CKM      .34480411 03  CKC     .27562362 03  CKT     .34480411 03  PSS     .13061838 03  PSM     .10672314 02
   UT       .20000000 01  DHA     .19698104-02  DDE     .20948451-03  DEL     .17088464-02  DAZ    -.54518322-03
   ET       .19990555 01  RGE     .33618075 05  DRG     .38813485 01  DDR    -.19876880-03  SLS     .18262553 03
   RDI      .63754947 04  PHI    -.25734820 02  THI     .27684780 02  SPS     .13062809 03  POL     .16877430 03
   DT       .11213781 00  RF1     .00000000 00  RF2     .00000000 00  BF1     .13756304 06
   ESS1    -.11122553 03  ESS2   -.13482553 03  F1      .11362240 06  F2      .12485912 06  PRA     .26136396 03
   RF       .00000000 00  DOP     .12730008-05

   0 DAYS  3 HRS.  0 MIN.  0.000 SEC.          JULIAN DATE 2437778.50299768          APRIL 24,1962   00 04 19.000

GEOCENTRIC                                                                          EQUATORIAL COORDINATES

    X -.49788086 04     Y -.45888029 05     Z -.24891258 05    DX  .10063196 01    DY -.32776912 01    DZ -.14478074 01
    R  .52441157 05   DEC -.28336655 02    RA  .26380758 03     V  .37218389 01   PTH  .68370344 02    AZ  .80736554 02
    R  .52441155 05   LAT -.28336656 02   LON  .51183062 02    VE  .40082783 01   PTE  .59672786 02   AZE  .27626424 03
   XS  .12568787 09    YS  .75878068 08    ZS  .32902589 08   DXS -.15876106 02   DYS  .22926535 02   DZS  .99406582 01
   XM -.70205931 05    YM -.35999546 06    ZM -.12583262 06   DXM  .10022236 01   DYM -.11186206 00   DZM -.10761121 00
   XT -.70205931 05    YT -.35999546 06    ZT -.12583262 06   DXT  .10022236 01   DYT -.11186206 00   DZT -.10761121 00
   RS  .15045764 09    VS  .29605632 02    RM  .38776210 06    VM  .10141722 01    RT  .38776210 06    VT  .10141722 01
  GED -.28499530 02   ALT  .46067815 05   LOS  .17849486 03   RAS  .31119479 02   RAM  .25896474 03   LOM  .46340120 02
  DUT  .34000000 02    DT  .48000000 03    DR  .34597687 01   SHA  .40961857 05   DES  .12631714 02   DEM -.18935881 02

DOMJET                  1    UNIFORM TIME     TAU .00000000 00
   R        .52441155 05          LAT      -.28336656 02          LONG      .51183062 02
   MIN      .18000000 03  HA      .92476884 02  DEC    -.25108292 02  ELE     .10743336 02  AZI     .24704349 03
   CKM      .34916692 03  CKC     .28033124 03  CKT     .34916692 03  PSS     .13503771 03  PSM     .67148171 01
   UT       .30000000 01  DHA     .20224175-02  DDE     .13178557-03  DEL    -.16577692-02  DAZ    -.80330767-03
   ET       .29990555 01  RGE     .50878179 05  DRG     .36617074 01  DDR    -.85708959-04  SLS     .18622470 03
   RDI      .63725296 04  PHI    -.31210140 02  THI     .13688502 03  SPS     .13505140 03  POL     .22253415 02
   DT       .16971131 00  RF1     .00000000 00  RF2     .00000000 00  BF1     .13826649 06
   ESS1    -.11482470 03  ESS2   -.13842470 03  F1      .11294335 06  F2      .12345237 06  PRA     .25703275 03
   RF       .00000000 00  DOP     .54891700-06

JOBJET                  1    UNIFORM TIME     TAU .00000000 00
   R        .52441155 05          LAT      -.28336656 02          LONG      .51183062 02
   MIN      .18000000 03  HA      .33329643 03  DEC    -.28377208 02  ELE     .66121225 02  AZI     .10238879 03
   CKM      .34614523 03  CKC     .27730955 03  CKT     .34614523 03  PSS     .12582878 03  PSM     .11912615 02
   UT       .30000000 01  DHA     .30565938-02  DDE     .20615412-03  DEL     .26895279-02  DAZ    -.50206932-03
   ET       .29990555 01  RGE     .46547833 05  DRG     .33563036 01  DDR    -.10634586-03  SLS     .18545206 03
   RDI      .63754947 04  PHI    -.25734820 02  THI     .27684780 02  SPS     .12584314 03  POL     .17527630 03
   DT       .15526684 00  RF1     .00000000 00  RF2     .00000000 00  BF1     .13924461 06
   ESS1    -.11405206 03  ESS2   -.13765206 03  F1      .11198714 06  F2      .12149633 06  PRA     .26701295 03
   RF       .00000000 00  DOP     .68108457-06
```

RANGER-4 ORBIT 042362 STATION PRINTS BK

0 DAYS 4 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437778.54466435 APRIL 24,1962 01 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	-.12996368 04	Y	-.56970662 05	Z	-.29719555 05	DX	.10307415 01	DY	-.29038373 01	DZ	-.12489029 01
R	.64269723 05	DEC	-.27543326 02	RA	.26869317 03	V	.33248243 01	PTH	.70325571 02	AZ	.78445300 02
R	.64269722 05	LAT	-.27543327 02	LON	.41027489 02	VE	.43826523 01	PTE	.45589511 02	AZE	.27419247 03
XS	.12563068 09	YS	.75960587 08	ZS	.32938369 08	DXS	-.15893713 02	DYS	.22915994 02	DZS	.99360782 01
XM	-.66594969 05	YM	-.36038202 06	ZM	-.12621439 06	DXM	.10038448 01	DYM	-.10288963 00	DZM	-.10447663 00
XT	-.66594969 05	YT	-.36038202 06	ZT	-.12621439 06	DXT	.10038448 01	DYT	-.10288963 00	DZT	-.10447663 00
RS	.15045934 09	VS	.29605380 02	RM	.38760826 06	VM	.10144979 01	RT	.38760826 06	VT	.10144979 01
GED	-.27703185 02	ALT	.57896134 05	LOS	.16349290 03	RAS	.31158584 02	RAM	.25953041 03	LOM	.31864727 02
DUT	.34000000 02	DT	.48000000 03	DR	.31307242 01	SHA	.53000242 05	DES	.12645532 02	DEM	-.19003357 02

DOMJET 1 UNIFORM TIME TAU .00000000 00

R	.64269722 05	LAT	-.27543327 02	LONG	.41027489 02						
MIN	.24000000 03	HA	.10124026 03	DEC	-.24564020 02	ELE	.36572060 01	AZI	.24336392 03		
CKM	.35034759 03	CKC	.28179556 03	CKT	.35034759 03	PSS	.12945937 03	PSM	.74425628 01		
UT	.40000000 01	DHA	.27510852-02	DDE	.15796001-03	DEL	-.21887816-02	DAZ	-.12250799-02		
ET	.39990555 01	RGE	.63547821 05	DRG	.33875645 01	DDR	-.68061890-04	SLS	.18815608 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.12947805 03	POL	.29104045 02		
DT	.21197269 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.13914449 06				
ESS1	-.11675608 03	ESS2	-.14035608 03	F1	.11209801 06	F2	.12169655 06	PRA	.26331044 03		
RF	.00000000 00	DOP	.43589759-06								

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.64269722 05	LAT	-.27543327 02	LONG	.41027489 02						
MIN	.24000000 03	HA	.34518014 03	DEC	-.27663365 02	ELE	.76629029 02	AZI	.10158627 03		
CKM	.34693961 03	CKC	.27838758 03	CKT	.34693961 03	PSS	.12313480 03	PSM	.13075784 02		
UT	.40000000 01	DHA	.34902269-02	DDE	.13120577-03	DEL	.30962976-02	DAZ	.31727875-03		
ET	.39990555 01	RGE	.58050133 05	DRG	.30595642 01	DDR	-.63104278-04	SLS	.18737013 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.12315331 03	POL	.18220391 03		
DT	.19363437 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14019498 06				
ESS1	-.11597013 03	ESS2	-.13957013 03	F1	.11107251 06	F2	.11959578 06	PRA	.27017032 03		
RF	.00000000 00	DOP	.40414691-06								

0 DAYS 5 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437778.58633102 APRIL 24,1962 02 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.24122900 04	Y	-.66925513 05	Z	-.33957724 05	DX	.10289458 01	DY	-.26400631 01	DZ	-.11131699 01
R	.75086419 05	DEC	-.26888040 02	RA	.27206430 03	V	.30443078 01	PTH	.71656041 02	AZ	.76901942 02
R	.75086419 05	LAT	-.26888040 02	LON	.29357543 02	VE	.48991478 01	PTE	.36144144 02	AZE	.27314606 03
XS	.12557343 09	YS	.76043069 08	ZS	.32974131 08	DXS	-.15911312 02	DYS	.22905442 02	DZS	.99314936 01
XM	-.62978333 05	YM	-.36073625 06	ZM	-.12658484 06	DXM	.10053782 01	DYM	-.93896731-01	DZM	-.10132867 00
XT	-.62978333 05	YT	-.36073625 06	ZT	-.12658484 06	DXT	.10053782 01	DYT	-.93896731-01	DZT	-.10132867 00
RS	.15046105 09	VS	.29605129 02	RM	.38745404 06	VM	.10148248 01	RT	.38745404 06	VT	.10148248 01
GED	-.27045314 02	ALT	.68712629 05	LOS	.14849094 03	RAS	.31197693 02	RAM	.26009694 03	LOM	.17390188 02
DUT	.34000000 02	DT	.48000000 03	DR	.28896092 01	SHA	.64009238 05	DES	.12659345 02	DEM	-.19069164 02

RANGER-4 ORBIT 042362 STATION PRINTS BK
DOMJET 1 UNIFORM TIME TAU .00000000 00

R	.75086419 05		LAT	-.26888040 02		LONG	.29357543 02				
MIN	.30000000 03	HA	.11185933 03	DEC	-.24014445 02	ELE	-.45884451 01	AZI	.23826531 03		
CKM	.35101069 03	CKC	.28270507 03	CKT	.35101069 03	PSS	.12549687 03	PSM	.95629585 01		
UT	.50000000 01	DHA	.31117348-02	DDE	.14475246-03	DEL	-.23510409-02	DAZ	-.16091374-02		
ET	.49990555 01	RGE	.75327041 05	DRG	.31624296 01	DDR	-.58036432-04	SLS	.18963309 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.12552021 03	POL	.35899350 02		
DT	.25126392 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.13986553 06				
ESS1	-.11823309 03	ESS2	-.14183309 03	F1	.11137739 06	F2	.12025461 06	PRA	.26773243 03		
RF	.00000000 00	DOP	.37169025-06								

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.75086419 05		LAT	-.26888040 02		LONG	.29357543 02				
MIN	.30000000 03	HA	.35817036 03	DEC	-.25994022 02	ELE	.87932891 02	AZI	.12793102 03		
CKM	.34755344 03	CKC	.27924782 03	CKT	.34755344 03	PSS	.12137801 03	PSM	.13864780 02		
UT	.50000000 01	DHA	.37033869-02	DDE	.18140204-03	DEL	.27407198-02	DAZ	.51197024-01		
ET	.49990555 01	RGE	.68714720 05	DRG	.28795559 01	DDR	-.39052849-04	SLS	.18883506 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.12140034 03	POL	.21585936 03		
DT	.22920760 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14077150 06				
ESS1	-.11743506 03	ESS2	-.14103506 03	F1	.11050433 06	F2	.11844287 06	PRA	.27222118 03		
RF	.00000000 00	DOP	.25011123-06								

0 DAYS 6 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437778.62799768 APRIL 24,1962 03 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.60972826 04	Y	-.76054835 05	Z	-.37776242 05	DX	.10172822 01	DY	-.24400813 01	DZ	-.10127526 01
R	.85138469 05	DEC	-.26340424 02	RA	.27458357 03	V	.28309941 01	PTH	.72634538 02	AZ	.75771666 02
R	.85138469 05	LAT	-.26340424 02	LON	.16835754 02	VE	.54641111 01	PTE	.29636249 02	AZE	.27250624 03
XS	.12551611 09	YS	.76125515 08	ZS	.33009878 08	DXS	-.15928904 02	DYS	.22894879 02	DZS	.99269038 01
XM	-.59356322 05	YM	-.36105806 06	ZM	-.12694393 06	DXM	.10068236 01	DYM	-.84884062-01	DZM	-.98167541-01
XT	-.59356322 05	YT	-.36105806 06	ZT	-.12694393 06	DXT	.10068236 01	DYT	-.84884062-01	DZT	-.98167541-01
RS	.15046275 09	VS	.29604880 02	RM	.38729944 06	VM	.10151531 01	RT	.38729944 06	VT	.10151531 01
GED	-.26495475 02	ALT	.78764513 05	LOS	.13348899 03	RAS	.31236807 02	RAM	.26066433 03	LOM	.29165039 01
DUT	.34000000 02	DT	.48000000 03	DR	.27019586 01	SHA	.74237975 05	DES	.12673149 02	DEM	-.19133289 02

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.85138469 05		LAT	-.26340424 02		LONG	.16835754 02				
MIN	.36000000 03	HA	.11725510 02	DEC	-.26353625 02	ELE	.79450626 02	AZI	.26406866 03		
CKM	.34809317 03	CKC	.28000836 03	CKT	.34809317 03	PSS	.12009963 03	PSM	.14392387 02		
UT	.59999999 01	DHA	.38153820-02	DDE	.17464919-03	DEL	-.34162019-02	DAZ	.12042948-02		
ET	.59990555 01	RGE	.78862734 05	DRG	.27666842 01	DDR	-.24903975-04	SLS	.19003150 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.12012560 03	POL	.35899359 03		
DT	.26305773 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14113299 06				
ESS1	-.11863151 03	ESS2	-.14223150 03	F1	.11015788 06	F2	.11771996 06	PRA	.27370709 03		
RF	.00000000 00	DOP	.15949576-06								

RANGER-4 ORBIT 042362 STATION PRINTS BK

0 DAYS 7 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437778.66966435 APRIL 24,1962 04 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.97321567 04	Y	-.84542882 05	Z	-.41275826 05	DX	.10017070 01	DY	-.22810635 01	DZ	-.93442376 00
R	.94582807 05	DEC	-.25874337 02	RA	.27656670 03	V	.26607922 01	PTH	.73391329 02	AZ	.74896995 02
R	.94582807 05	LAT	-.25874337 02	LON	.37778169 01	VE	.60396123 01	PTE	.24972074 02	AZE	.27207423 03
XS	.12545873 09	YS	.76207921 08	ZS	.33045608 08	DXS	-.15946488 02	DYS	.22884305 02	DZS	.99223096 01
XM	-.55729277 05	YM	-.36134740 06	ZM	-.12729163 06	DXM	.10081806 01	DYM	-.75852425-01	DZM	-.94993529-01
XT	-.55729277 05	YT	-.36134740 06	ZT	-.12729163 06	DXT	.10081806 01	DYT	-.75852425-01	DZT	-.94993529-01
RS	.15046445 09	VS	.29604630 02	RM	.38714448 06	VM	.10154829 01	RT	.38714448 06	VT	.10154829 01
GED	-.26027452 02	ALT	.88208713 05	LOS	.11848704 03	RAS	.31275923 02	RAM	.26123255 03	LOM	.34844367 03
DUT	.34000000 02	DT	.95999999 03	DR	.25497822 01	SHA	.83845630 05	DES	.12686950 02	DEM	-.19195723 02

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.94582807 05		LAT	-.25874337 02		LONG	.37778169 01				
MIN	.42000000 03	HA	.25576492 02	DEC	-.25735879 02	ELE	.66997094 02	AZI	.26436865 03		
CKM	.34859280 03	CKC	.28070981 03	CKT	.34859280 03	PSS	.11906892 03	PSM	.14766561 02		
UT	.70000000 01	DHA	.38728467-02	DDE	.16848673-03	DEL	-.34883922-02	DAZ	-.44615120-03		
ET	.69990554 01	RGE	.88681440 05	DRG	.26929387 01	DDR	-.16898932-04	SLS	.19105072 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.11909843 03	POL	.62570871 01		
DT	.29580940 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14136918 06				
ESS1	-.11965072 03	ESS2	-.14325072 03	F1	.10993615 06	F2	.11724763 06	PRA	.27489717 03		
RF	.00000000 00	DOP	.10822802-06								

0 DAYS 8 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437778.71133102 APRIL 24,1962 05 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.13307930 05	Y	-.92512164 05	Z	-.44521867 05	DX	.98471384 00	DY	-.21502615 01	DZ	-.87099852 00
R	.10352680 06	DEC	-.25470837 02	RA	.27818588 03	V	.25203024 01	PTH	.73997634 02	AZ	.74193142 02
R	.10352680 06	LAT	-.25470837 02	LON	.35035592 03	VE	.66099047 01	PTE	.21500961 02	AZE	.27176350 03
XS	.12540129 09	YS	.76290291 08	ZS	.33081322 08	DXS	-.15964065 02	DYS	.22873720 02	DZS	.99177105 01
XM	-.52097497 05	YM	-.36160419 06	ZM	-.12762787 06	DXM	.10094489 01	DYM	-.66802531-01	DZM	-.91806851-01
XT	-.52097497 05	YT	-.36160419 06	ZT	-.12762787 06	DXT	.10094489 01	DYT	-.66802531-01	DZT	-.91806851-01
RS	.15046616 09	VS	.29604381 02	RM	.38698916 06	VM	.10158140 01	RT	.38698916 06	VT	.10158140 01
GED	-.25622242 02	ALT	.97152586 05	LOS	.10348509 03	RAS	.31315044 02	RAM	.26180162 03	LOM	.33397166 03
DUT	.34000000 02	DT	.95999999 03	DR	.24226415 01	SHA	.92941458 05	DES	.12700744 02	DEM	-.19256454 02

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.10352680 06		LAT	-.25470837 02		LONG	.35035592 03				
MIN	.48000000 03	HA	.39572277 02	DEC	-.25141670 02	ELE	.54395812 02	AZI	.26212850 03		
CKM	.34905924 03	CKC	.28136326 03	CKT	.34905924 03	PSS	.11815515 03	PSM	.15061820 02		
UT	.80000000 01	DHA	.38985758-02	DDE	.15139272-03	DEL	-.35059837-02	DAZ	-.74783505-03		
ET	.79990555 01	RGE	.98276590 05	DRG	.26399431 01	DDR	-.13138762-04	SLS	.19194307 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.11818813 03	POL	.11090399 02		
DT	.32781537 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14153891 06				
ESS1	-.12054307 03	ESS2	-.14414307 03	F1	.10976985 06	F2	.11690821 06	PRA	.27594246 03		
RF	.00000000 00	DOP	.84146279-07								

0 DAYS 9 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437778.75299768 APRIL 24,1962 06 04 19.000

CASE 1 SPACE TRAJECTORIES

RANGER-4 ORBIT 042362 STATION PRINTS BK

GEOCENTRIC EQUATORIAL COORDINATES

X	.16821781 05	Y	-.10004920 06	Z	-.47559702 05	DX	.96743402 00	DY	-.20399109 01	DZ	-.81819516 00
R	.11204794 06	DEC	-.25116394 02	RA	.27954416 03	V	.24013764 01	PTH	.74496169 02	AZ	.73609961 02
R	.11204794 06	LAT	-.25116394 02	LON	.33667314 03	VE	.71684681 01	PTE	.18832467 02	AZE	.27152976 03
XS	.12534379 09	YS	.76372622 08	ZS	.33117018 08	DXS	-.15981633 02	DYS	.22863125 02	DZS	.99131072 01
XM	-.48461326 05	YM	-.36182836 06	ZM	-.12795252 06	DXM	.10106282 01	DYM	-.57735189-01	DZM	-.88607791-01
XT	-.48461326 05	YT	-.36182836 06	ZT	-.12795252 06	DXT	.10106282 01	DYT	-.57735189-01	DZT	-.88607791-01
RS	.15046787 09	VS	.29604134 02	RM	.38683347 06	VM	.10161466 01	RT	.38683347 06	VT	.10161466 01
GED	-.25266272 02	ALT	.10567362 06	LOS	.88483147 02	RAS	.31354167 02	RAM	.26237150 03	LOM	.31950048 03
DUT	.34000000 02	DT	.95999999 03	DR	.23139956 01	SHA	.10160448 06	DES	.12714533 02	DEM	-.19315472 02

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.11204794 06	LAT	-.25116394 02	LONG	.33667314 03						
MIN	.54000000 03	HA	.53623962 02	DEC	-.24575864 02	ELE	.41793227 02	AZI	.25914121 03		
CKM	.34948821 03	CKC	.28196727 03	CKT	.34948821 03	PSS	.11728105 03	PSM	.15325088 02		
UT	.90000000 01	DHA	.39055889-02	DDE	.15263859-03	DEL	-.34905630-02	DAZ	-.90420448-03		
ET	.89990555 01	RGE	.10769816 06	DRG	.25946691 01	DDR	-.12446182-04	SLS	.19273823 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.11731749 03	POL	.15482780 02		
DT	.35924233 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14168391 06				
ESS1	-.12133823 03	ESS2	-.14493823 03	F1	.10963127 06	F2	.11661824 06	PRA	.27693184 03		
RF	.00000000 00	DOP	.79710695-07								

0 DAYS 10 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437778.79466435 APRIL 24,1962 07 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.20273766 05	Y	-.10721795 06	Z	-.50422306 05	DX	.95040081 00	DY	-.19449705 01	DZ	-.77328210 00
R	.12020451 06	DEC	-.24801194 02	RA	.28070760 03	V	.22987251 01	PTH	.74914334 02	AZ	.73115670 02
R	.12020450 06	LAT	-.24801195 02	LON	.32279550 03	VE	.77128150 01	PTE	.16724411 02	AZE	.27134796 03
XS	.12528622 09	YS	.76454911 08	ZS	.33152698 08	DXS	-.15999195 02	DYS	.22852518 02	DZS	.99084991 01
XM	-.44821065 05	YM	-.36201986 06	ZM	-.12826583 06	DXM	.10117180 01	DYM	-.48651113-01	DZM	-.85396578-01
XT	-.44821065 05	YT	-.36201986 06	ZT	-.12826583 06	DXT	.10117180 01	DYT	-.48651113-01	DZT	-.85396578-01
RS	.15046957 09	VS	.29603887 02	RM	.38667742 06	VM	.10164806 01	RT	.38667742 06	VT	.10164806 01
GED	-.24949696 02	ALT	.11383010 06	LOS	.73481204 02	RAS	.31393293 02	RAM	.26294221 03	LOM	.30503012 03
DUT	.34000000 02	DT	.95999999 03	DR	.22195059 01	SHA	.10989419 06	DES	.12728314 02	DEM	-.19372764 02

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R	.12020450 06	LAT	-.24801195 02	LONG	.32279550 03						
MIN	.59999999 03	HA	.27768663 03	DEC	-.26539038 02	ELE	-.91570612 01	AZI	.11609888 03		
CKM	.34683445 03	CKC	.27947861 03	CKT	.34683445 03	PSS	.11157324 03	PSM	.19257289 02		
UT	.10000000 02	DHA	.39547188-02	DDE	.39643599-04	DEL	.29276812-02	DAZ	.20125489-02		
ET	.99990555 01	RGE	.12105383 06	DRG	.18983904 01	DDR	-.22677646-04	SLS	.19375364 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.11161610 03	POL	.21866572 03		
DT	.40379205 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14391389 06				
ESS1	-.12235364 03	ESS2	-.14595364 03	F1	.10746941 06	F2	.11215874 06	PRA	.28342085 03		
RF	.00000000 00	DOP	.14523739-06								

RANGER-4 ORBIT 042362 STATION PRINTS BK
JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.12020450 06		LAT	-.24801195 02		LONG	.32279550 03				
MIN	.59999999 03	HA	.67680050 02	DEC	-.24044899 02	ELE	.29297333 02	AZI	.25562951 03		
CKM	.34987147 03	CKC	.28251562 03	CKT	.34987147 03	PSS	.11640209 03	PSM	.15583060 02		
UT	.10000000 02	DHA	.39021280-02	DDE	.14203902-03	DEL	-.34469856-02	DAZ	-.10491765-02		
ET	.99990555 01	RGE	.11695605 06	DRG	.25476908 01	DDR	-.13957705-04	SLS	.19345452 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.11644197 03	POL	.19893494 02		
DT	.39012333 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14183437 06				
ESS1	-.12205452 03	ESS2	-.14565452 03	F1	.10947883 06	F2	.11631735 06	PRA	.27791682 03		
RF	.00000000 00	DOP	.89391141-07								

0 DAYS 11 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437778.83633102 APRIL 24,1962 08 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.23665278 05	Y	-.11406732 06	Z	-.53134574 05	DX	.93386382 00	DY	-.18620007 01	DZ	-.73442343 00
R	.12804172 06	DEC	-.24517970 02	RA	.28172074 03	V	.22087385 01	PTH	.75270645 02	AZ	.72689026 02
R	.12804171 06	LAT	-.24517971 02	LON	.30876759 03	VE	.82422841 01	PTE	.15020828 02	AZE	.27120278 03
XS	.12522858 09	YS	.76537168 08	ZS	.33188362 08	DXS	-.16016749 02	DYS	.22841900 02	DZS	.99038859 01
XM	-.41177033 05	YM	-.36217863 06	ZM	-.12856745 06	DXM	.10127183 01	DYM	-.39551062-01	DZM	-.82173466-01
XT	-.41177033 05	YT	-.36217863 06	ZT	-.12856745 06	DXT	.10127183 01	DYT	-.39551062-01	DZT	-.82173466-01
RS	.15047127 09	VS	.29603641 02	RM	.38652102 06	VM	.10168161 01	RT	.38652102 06	VT	.10168161 01
GED	-.24665220 02	ALT	.12166723 06	LOS	.58479257 02	RAS	.31432424 02	RAM	.26351374 03	LOM	.29056058 03
DUT	.34000000 02	DT	.95999999 03	DR	.21361541 01	SHA	.11785679 06	DES	.12742090 02	DEM	-.19428321 02

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R	.12804171 06		LAT	-.24517971 02		LONG	.30876759 03				
MIN	.66000000 03	HA	.29205114 03	DEC	-.26396732 02	ELE	.11079847 01	AZI	.12386340 03		
CKM	.34677993 03	CKC	.27958069 03	CKT	.34677993 03	PSS	.11100007 03	PSM	.19369028 02		
UT	.11000000 02	DHA	.40231108-02	DDE	.40157119-04	DEL	.27587878-02	DAZ	.23192681-02		
ET	.10999056 02	RGE	.12775991 06	DRG	.18323439 01	DDR	-.14123023-04	SLS	.19422196 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.11104547 03	POL	.22488416 03		
DT	.42616112 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14412542 06				
ESS1	-.12282196 03	ESS2	-.14642196 03	F1	.10726154 06	F2	.11173573 06	PRA	.28409739 03		
RF	.00000000 00	DOP	.90449906-07								

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.12804171 06		LAT	-.24517971 02		LONG	.30876759 03				
MIN	.66000000 03	HA	.81713425 02	DEC	-.23555223 02	ELE	.17009742 02	AZI	.25155022 03		
CKM	.35020044 03	CKC	.28300121 03	CKT	.35020044 03	PSS	.11549548 03	PSM	.15848072 02		
UT	.11000000 02	DHA	.38937315-02	DDE	.12974402-03	DEL	-.33742076-02	DAZ	-.12246263-02		
ET	.10999056 02	RGE	.12603144 06	DRG	.24923790 01	DDR	-.16967298-04	SLS	.19410365 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.11553878 03	POL	.24587164 02		
DT	.42039556 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14201151 06				
ESS1	-.12270365 03	ESS2	-.14630364 03	F1	.10931253 06	F2	.11596310 06	PRA	.27892451 03		
RF	.00000000 00	DOP	.10866587-06								

CASE 1 SPACE TRAJECTORIES 9

RANGER-4 ORBIT 042362 STATION PRINTS BK

0 DAYS 12 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437778.87799768 APRIL 24,1962 09 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.26998324 05	Y	-.12063577 06	Z	-.55715860 05	DX	.91793138 00	DY	-.17885617 01	DZ	-.70033346 00
R	.13559555 06	DEC	-.24261220 02	RA	.28261494 03	V	.21288536 01	PTH	.75578132 02	AZ	.72315216 02
R	.13559555 06	LAT	-.24261221 02	LON	.29462072 03	VE	.87570525 01	PTE	.13617621 02	AZE	.27108438 03
XS	.12517089 09	YS	.76619385 08	ZS	.33224010 08	DXS	-.16034295 02	DYS	.22831271 02	DZS	.98992682 01
XM	-.37529567 05	YM	-.36230462 06	ZM	-.12885746 06	DXM	.10136286 01	DYM	-.30435837-01	DZM	-.78938724-01
XT	-.37529567 05	YT	-.36230462 06	ZT	-.12885746 06	DXT	.10136286 01	DYT	-.30435837-01	DZT	-.78938724-01
RS	.15047297 09	VS	.29603396 02	RM	.38636426 06	VM	.10171531 01	RT	.38636426 06	VT	.10171531 01
GED	-.24407321 02	ALT	.12922099 06	LOS	.43477337 02	RAS	.31471558 02	RAM	.26408606 03	LOM	.27609184 03
DUT	.34000000 02	DT	.19200000 04	DR	.20617696 01	SHA	.12552908 06	DES	.12755859 02	DEM	-.19482132 02

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R .13559555 06 LAT -.24261221 02 LONG .29462072 03

MIN	.72000000 03	HA	.30663577 03	DEC	-.25245178 02	ELE	.10568638 02	AZI	.13293380 03		
CKM	.34675483 03	CKC	.27970488 03	CKT	.34675483 03	PSS	.11062166 03	PSM	.19330565 02		
UT	.12000000 02	DHA	.40771127-02	DDE	.44606207-04	DEL	.24749049-02	DAZ	.27388672-02		
ET	.11999055 02	RGE	.13428208 06	DRG	.17957361 01	DDR	-.63767464-05	SLS	.19465443 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.11066950 03	POL	.23255145 03		
DT	.44791673 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14424266 06				
ESS1	-.12325443 03	ESS2	-.14685443 03	F1	.10713681 06	F2	.11150126 06	PRA	.28455383 03		
RF	.00000000 00	DOP	.40839424-07								

JOBJET 1 UNIFORM TIME TAU .00000000 00

R .13559555 06 LAT -.24261221 02 LONG .29462072 03

MIN	.72000000 03	HA	.95713619 02	DEC	-.23112380 02	ELE	.50461505 01	AZI	.24674086 03		
CKM	.35046814 03	CKC	.28341819 03	CKT	.35046814 03	PSS	.11455352 03	PSM	.16122721 02		
UT	.12000000 02	DHA	.38842231-02	DDE	.11608587-03	DEL	-.32652357-02	DAZ	-.14596868-02		
ET	.11999055 02	RGE	.13488597 06	DRG	.24244619 01	DDR	-.20865812-04	SLS	.19469340 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.11460022 03	POL	.29820462 02		
DT	.44993110 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14222903 06				
ESS1	-.12329340 03	ESS2	-.14689340 03	F1	.10910466 06	F2	.11552810 06	PRA	.27996538 03		
RF	.00000000 00	DOP	.13363363-06								

0 DAYS 13 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437778.91966435 APRIL 24,1962 10 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.30275166 05	Y	-.12695424 06	Z	-.58181557 05	DX	.90263938 00	DY	-.17228664 01	DZ	-.67008094 00
R	.14289527 06	DEC	-.24026699 02	RA	.28341298 03	V	.20571910 01	PTH	.75846288 02	AZ	.71983564 02
R	.14289527 06	LAT	-.24026700 02	LON	.28037759 03	VE	.92576745 01	PTE	.12443040 02	AZE	.27098611 03
XS	.12511313 09	YS	.76701565 08	ZS	.33259640 08	DXS	-.16051834 02	DYS	.22820631 02	DZS	.98946453 01
XM	-.33878979 05	YM	-.36239776 06	ZM	-.12913579 06	DXM	.10144485 01	DYM	-.21306185-01	DZM	-.75692599-01
XT	-.33878979 05	YT	-.36239776 06	ZT	-.12913579 06	DXT	.10144485 01	DYT	-.21306185-01	DZT	-.75692599-01
RS	.15047468 09	VS	.29603151 02	RM	.38620717 06	VM	.10174916 01	RT	.38620717 06	VT	.10174916 01
GED	-.24171741 02	ALT	.13652064 06	LOS	.28475403 02	RAS	.31510697 02	RAM	.26465918 03	LOM	.26162389 03
DUT	.34000000 02	DT	.19200000 04	DR	.19947413 01	SHA	.13294098 06	DES	.12769623 02	DEM	-.19534185 02

RANGER-4 ORBIT 042362 STATION PRINTS BK
JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R	.14289527 06		LAT	-.24026700 02		LONG	.28037769 03				
MIN	.77999999 03	HA	.32138969 03	DEC	-.26072170 02	ELE	.18742575 02	AZI	.14370744 03		
CKM	.34676992 03	CKC	.27986282 03	CKT	.34676992 03	PSS	.11039199 03	PSM	.19173580 02		
UT	.13000000 02	DHA	.41172249-02	DDE	.51881665-04	DEL	.20371425-02	DAZ	.32599171-02		
ET	.12999055 02	RGE	.14072037 06	DRG	.17850567 01	DDR	.22492879-06	SLS	.19506121 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.11044220 03	POL	.24200623 03		
DT	.46939257 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14427686 06				
ESS1	-.12366121 03	ESS2	-.14726121 03	F1	.10710910 06	F2	.11143286 06	PRA	.28484099 03		
RF	.00000000 00	DOP	-.14405406-08								

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.14289527 06		LAT	-.24026700 02		LONG	.28037769 03				
MIN	.77999999 03	HA	.10968171 03	DEC	-.22720546 02	ELE	-.64386630 01	AZI	.24092970 03		
CKM	.35067001 03	CKC	.28376291 03	CKT	.35067001 03	PSS	.11357903 03	PSM	.16403368 02		
UT	.13000000 02	DHA	.38762531-02	DDE	.10147553-03	DEL	-.31047672-02	DAZ	-.17873913-02		
ET	.12999055 02	RGE	.14346971 06	DRG	.23417228 01	DDR	-.25118119-04	SLS	.19522927 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.11362908 03	POL	.35913616 02		
DT	.47856336 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14249402 06				
ESS1	-.12382927 03	ESS2	-.14742927 03	F1	.10884136 06	F2	.11499818 06	PRA	.28103836 03		
RF	.00000000 00	DOP	.16086723-06								

0 DAYS 14 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437778.96133102 APRIL 24,1962 11 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.33498107 05	Y	-.13304807 06	Z	-.60544207 05	DX	.88798573 00	DY	-.16635709 01	DZ	-.64297254 00
R	.14996504 06	DEC	-.23811075 02	RA	.28413189 03	V	.19923354 01	PTH	.76082198 02	AZ	.71686122 02
R	.14996504 06	LAT	-.23811076 02	LON	.26605553 03	VE	.97448552 01	PTE	.11446199 02	AZE	.27090335 03
XS	.12505531 09	YS	.76783703 08	ZS	.33295255 08	DXS	-.16069365 02	DYS	.22809980 02	DZS	.98900184 01
XM	-.30225613 05	YM	-.36245801 06	ZM	-.12940243 06	DXM	.10151780 01	DYM	-.12162923-01	DZM	-.72435371-01
XT	-.30225613 05	YT	-.36245801 06	ZT	-.12940243 06	DXT	.10151780 01	DYT	-.12162923-01	DZT	-.72435371-01
RS	.15047638 09	VS	.29602908 02	RM	.38604971 06	VM	.10178316 01	RT	.38604971 06	VT	.10178316 01
GED	-.23955134 02	ALT	.14359035 06	LOS	.13473476 02	RAS	.31549837 02	RAM	.26523309 03	LOM	.24715673 03
DUT	.34000000 02	DT	.19200000 04	DR	.19338441 01	SHA	.14011723 06	DES	.12783381 02	DEM	-.19584474 02

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R	.14996504 06		LAT	-.23811076 02		LONG	.26605553 03				
MIN	.84000000 03	HA	.33626366 03	DEC	-.25869668 02	ELE	.25008896 02	AZI	.15644294 03		
CKM	.34683053 03	CKC	.28006058 03	CKT	.34683053 03	PSS	.11026658 03	PSM	.18928263 02		
UT	.14000000 02	DHA	.41439001-02	DDE	.60790922-04	DEL	.14113486-02	DAZ	.38088499-02		
ET	.13999055 02	RGE	.14715999 06	DRG	.17955927 01	DDR	.53604284-05	SLS	.19544986 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.11031913 03	POL	.25345913 03		
DT	.49087281 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14424312 06				
ESS1	-.12404986 03	ESS2	-.14764986 03	F1	.10713681 06	F2	.11150034 06	PRA	.28500809 03		
RF	.00000000 00	DOP	-.34330487-07								

CASE 1 SPACE TRAJECTORIES 11

RANGER-4 ORBIT 042362 STATION PRINTS BK

0 DAYS 15 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.00299768 APRIL 24,1962 12 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.36669409 05	Y	-.13893837 06	Z	-.62814101 05	DX	.87394927 00	DY	-.16096418 01	DZ	-.61847981 00
R	.15682515 06	DEC	-.23611685 02	RA	.28478470 03	V	.19331972 01	PTH	.76291296 02	AZ	.71416859 02
R	.15682515 06	LAT	-.23611685 02	LON	.25166726 03	VE	.10219343 02	PTE	.10590101 02	AZE	.27083278 03
XS	.12499743 09	YS	.76865803 08	ZS	.33330851 08	DXS	-.16086888 02	DYS	.22799319 02	DZS	.98853869 01
XM	-.26569788 05	YM	-.36248532 06	ZM	-.12965732 06	DXM	.10158166 01	DYM	-.30068214-02	DZM	-.69167298-01
XT	-.26569788 05	YT	-.36248532 06	ZT	-.12965732 06	DXT	.10158166 01	DYT	-.30068214-02	DZT	-.69167298-01
*RS	.15047808 09	VS	.29602665 02	RM	.38589193 06	VM	.10181731 01	RT	.38589193 06	VT	.10181731 01
GED	-.23754827 02	ALT	.15045040 06	LOS	.35847155 03	RAS	.31588981 02	RAM	.26580777 03	LOM	.23269035 03
DUT	.34000000 02	DT	.19200000 04	DR	.18781255 01	SHA	.14707860 06	DES	.12797133 02	DEM	-.19632984 02

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R .15682515 06 LAT -.23611685 02 LONG .25166726 03

MIN	.90000000 03	HA	.35121055 03	DEC	-.25633964 02	ELE	.28682337 02	AZI	.17096526 03		
CKM	.34693693 03	CKC	.28029901 03	CKT	.34693693 03	PSS	.11020304 03	PSM	.18623049 02		
UT	.15000000 02	DHA	.41579054-02	DDE	.70130035-04	DEL	.60350040-03	DAZ	.42180111-02		
ET	.14999055 02	RGE	.15366721 06	DRG	.18215885 01	DDR	.87806100-05	SLS	.19582569 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.11025793 03	POL	.26669520 03		
DT	.51257857 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14415986 06				
ESS1	-.12442569 03	ESS2	-.14802569 03	F1	.10723382 06	F2	.11166684 06	PRA	.28510226 03		
RF	.00000000 00	DOP	-.56234799-07								

OOMJET 1 UNIFORM TIME TAU .00000000 00

R .15682515 06 LAT -.23611685 02 LONG .25166726 03

MIN	.90000000 03	HA	.24327633 03	DEC	-.22167792 02	ELE	-.92450741 01	AZI	.12306522 03		
CKM	.35043248 03	CKC	.28379456 03	CKT	.35043248 03	PSS	.10837321 03	PSM	.19002668 02		
UT	.15000000 02	DHA	.39613689-02	DDE	-.10952247-04	DEL	.28462907-02	DAZ	-.23449911-02		
ET	.14999055 02	RGE	.15772276 06	DRG	.15651404 01	DDR	-.26286179-04	SLS	.19605196 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10843018 03	POL	.14741434 03		
DT	.52610642 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14498119 06				
ESS1	-.12465196 03	ESS2	-.14825195 03	F1	.10643005 06	F2	.11002435 06	PRA	.28672611 03		
RF	.00000000 00	DOP	.16834798-06								

0 DAYS 16 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.04466435 APRIL 24,1962 13 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.39791257 05	Y	-.14464295 06	Z	-.64999901 05	DX	.86049940 00	DY	-.15602689 01	DZ	-.59619178 00
R	.16349285 06	DEC	-.23426372 02	RA	.28538157 03	V	.18789206 01	PTH	.76477832 02	AZ	.71171074 02
R	.16349285 06	LAT	-.23426373 02	LON	.23722307 03	VE	.10681877 02	PTE	.98472466 01	AZE	.27077194 03
XS	.12493948 09	YS	.76947868 08	ZS	.33366431 08	DXS	-.16104404 02	DYS	.22788646 02	DZS	.98807502 01
XM	-.22911815 05	YM	-.36247965 06	ZM	-.12990042 06	DXM	.10163641 01	DYM	.61613770-02	DZM	-.65888622-01
XT	-.22911815 05	YT	-.36247965 06	ZT	-.12990042 06	DXT	.10163641 01	DYT	.61613770-02	DZT	-.65888622-01
RS	.15047979 09	VS	.29602423 02	RM	.38573379 06	VM	.10185162 01	RT	.38573379 06	VT	.10185162 01
GED	-.23568658 02	ALT	.15711806 06	LOS	.34346963 03	RAS	.31628130 02	RAM	.26638322 03	LOM	.21822473 03
DUT	.34000000 02	DT	.19200000 04	DR	.18268351 01	SHA	.15384276 06	DES	.12810878 02	DEM	-.19679708 02

RANGER-4 ORBIT 042362 STATION PRINTS BK
JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R	.16349285 06		LAT	-.23426373 02		LONG	.23722307 03				
MIN	.95999999 03	HA	.61868572 01	DEC	-.25365558 02	ELE	.29234859 02	AZI	.18640731 03		
CKM	.34708486 03	CKC	.28057435 03	CKT	.34708486 03	PSS	.11016237 03	PSM	.18283871 02		
UT	.16000000 02	DHA	.41604934-02	DDE	.78785302-04	DEL	-.30140234-03	DAZ	.42952287-02		
ET	.15999055 02	RGE	.16028624 06	DRG	.18565868 01	DDR	.10350249-04	SLS	.19619199 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.11021963 03	POL	.28080646 03		
DT	.53465726 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14404777 06				
ESS1	-.12479199 03	ESS2	-.14839199 03	F1	.10734469 06	F2	.11189100 06	PRA	.28516703 03		
RF	.00000000 00	DOP	-.66287442-07								

DOMJET 1 UNIFORM TIME TAU .00000000 00

R	.16349285 06		LAT	-.23426373 02		LONG	.23722307 03				
MIN	.95999999 03	HA	.25762824 03	DEC	-.22212756 02	ELE	.15041605 01	AZI	.11523060 03		
CKM	.35017505 03	CKC	.28366454 03	CKT	.35017505 03	PSS	.10778591 03	PSM	.19088429 02		
UT	.16000000 02	DHA	.40115117-02	DDE	-.13526123-04	DEL	.31110514-02	DAZ	-.20289683-02		
ET	.15999055 02	RGE	.16320142 06	DRG	.14826817 01	DDR	-.19419087-04	SLS	.19634855 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10784505 03	POL	.15361253 03		
DT	.54438128 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14524529 06				
ESS1	-.12494855 03	ESS2	-.14854855 03	F1	.10618061 06	F2	.10949622 06	PRA	.28741527 03		
RF	.00000000 00	DOP	.12436817-06								

0 DAYS 17 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.08633102 APRIL 24,1962 14 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.42865679 05	Y	-.15017699 06	Z	-.67108931 05	DX	.84760159 00	DY	-.15148071 01	DZ	-.57578363 00				
R	.16998295 06	DEC	-.23253377 02	RA	.28593057 03	V	.18288236 01	PTH	.76645172 02	AZ	.70945051 02				
R	.16998295 06	LAT	-.23253377 02	LON	.22273100 03	VE	.11133155 02	PTE	.91968044 01	AZE	.27071900 03				
XS	.12488147 09	YS	.77029889 08	ZS	.33401996 08	DXS	-.16121912 02	DYS	.22777962 02	DZS	.98761090 01				
XM	-.19252045 05	YM	-.36244095 06	ZM	-.13013170 06	DXM	.10168201 01	DYM	.15340825-01	DZM	-.62599643-01				
XT	-.19252045 05	YT	-.36244095 06	ZT	-.13013170 06	DXT	.10168201 01	DYT	.15340825-01	DZT	-.62599643-01				
RS	.15048149 09	VS	.29602181 02	RM	.38557534 06	VM	.10188608 01	RT	.38557534 06	VT	.10188608 01				
GED	-.23394857 02	ALT	.16360810 06	LOS	.32846772 03	RAS	.31667280 02	RAM	.26695943 03	LOM	.20375987 03				
DUT	.34000000 02	DT	.19200000 04	DR	.17793691 01	SHA	.16042486 06	DES	.12824618 02	DEM	-.19724637 02				

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R	.16998295 06		LAT	-.23253377 02		LONG	.22273100 03				
MIN	.10200000 04	HA	.21154482 02	DEC	-.25068647 02	ELE	.26568513 02	AZI	.20143736 03		
CKM	.34726632 03	CKC	.28087899 03	CKT	.34726632 03	PSS	.11011051 03	PSM	.17933217 02		
UT	.17000000 02	DHA	.41534114-02	DDE	.85833318-04	DEL	-.11606794-02	DAZ	.40023178-02		
ET	.16999055 02	RGE	.16703738 06	DRG	.18938845 01	DDR	.10069803-04	SLS	.19655034 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.11017021 03	POL	.29441592 03		
DT	.55717665 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14392832 06				
ESS1	-.12515034 03	ESS2	-.14875034 03	F1	.10745555 06	F2	.11212988 06	PRA	.28524047 03		
RF	.00000000 00	DOP	-.64491346-07								

RANGER-4 ORBIT 042362 STATION PRINTS BK

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DOMJET                1   UNIFORM TIME     TAU .00000000 00
   R       .16998295 06        LAT     -.23253377 02        LONG     .22273100 03
   MIN     .10200000 04  HA      .27215549 03  DEC    -.22261561 02  ELE     .13066085 02  AZI     .10830666 03
   CKM     .34993676 03  CKC     .28354944 03  CKT     .34993676 03  PSS     .10736085 03  PSM     .19063214 02
   UT      .17000000 02  DHA     .40585478-02  DDE    -.13090644-04  DEL     .33017661-02  DAZ    -.18382197-02
   ET      .16999055 02  RGE     .16842889 06  DRG     .14258704 01  DDR    -.12098548-04  SLS     .19662240 03
   RDI     .63725296 04  PHI    -.31210140 02  THI     .13688502 03  SPS     .10742203 03  POL     .15841273 03
   DT      .56181823 00  RF1     .00000000 00  RF2     .00000000 00  BF1     .14542723 06
   ESS1   -.12522240 03  ESS2   -.14882240 03  F1      .10600045 06  F2      .10913236 06  PRA     .28792909 03
   RF      .00000000 00  DOP     .77484298-07

   0 DAYS 18 HRS.  0 MIN.  0.000 SEC.          JULIAN DATE 2437779.12799768          APRIL 24,1962   15 04 19.000

GEOCENTRIC                                                                          EQUATORIAL COORDINATES

    X  .45894615 05     Y -.15555362 06     Z -.69147481 05    DX  .83522049 00    DY -.14727345 01    DZ -.55699436 00
    R  .17630830 06   DEC -.23091235 02    RA  .28643819 03     V  .17823532 01   PTH  .76796048 02    AZ  .70735793 02
    R  .17630830 06   LAT -.23091235 02   LON  .20819756 03    VE  .11573834 02   PTE  .86227141 01   AZE  .27067256 03
   XS  .12482339 09    YS  .77111875 08    ZS  .33437543 08   DXS -.16139413 02   DYS  .22767267 02   DZS  .98714633 01
   XM -.15590798 05    YM -.36236919 06    ZM -.13035112 06   DXM  .10171846 01   DYM  .24530751-01   DZM -.59300611-01
   XT -.15590798 05    YT -.36236919 06    ZT -.13035112 06   DXT  .10171846 01   DYT  .24530751-01   DZT -.59300611-01
   RS  .15048319 09    VS  .29601940 02    RM  .38541654 06    VM  .10192070 01    RT  .38541654 06    VT  .10192070 01
  GED -.23231955 02   ALT  .16993342 06   LOS  .31346580 03   RAS  .31706435 02   RAM  .26753638 03   LOM  .18929575 03
  DUT  .34000000 02    DT  .19200000 04    DR  .17352334 01   SHA  .16683808 06   DES  .12838352 02   DEM -.19767758 02

JETGOLD-3             1   UNIFORM TIME     TAU .00000000 00
   R       .17630830 06        LAT     -.23091235 02        LONG     .20819756 03
   MIN     .10800000 04  HA      .36082359 02  DEC    -.24750292 02  ELE     .21070266 02  AZI     .21497153 03
   CKM     .34747056 03  CKC     .28120257 03  CKT     .34747056 03  PSS     .11001977 03  PSM     .17589311 02
   UT      .18000000 02  DHA     .41387877-02  DDE     .90613000-04  DEL    -.18628388-02  DAZ     .34997444-02
   ET      .17999055 02  RGE     .17391719 06  DRG     .19270277 01  DDR     .80755034-05  SLS     .19690092 03
   RDI     .63720164 04  PHI     .35116540 02  THI     .24319539 03  SPS     .11008196 03  POL     .30638452 03
   DT      .58012521 00  RF1     .00000000 00  RF2     .00000000 00  BF1     .14382217 06
   ESS1   -.12550092 03  ESS2   -.14910092 03  F1      .10755256 06  F2      .11234215 06  PRA     .28535366 03
   RF      .00000000 00  DOP    -.51718994-07

DOMJET                1   UNIFORM TIME     TAU .00000000 00
   R       .17630830 06        LAT     -.23091235 02        LONG     .20819756 03
   MIN     .10800000 04  HA      .28684429 03  DEC    -.22303521 02  ELE     .25210675 02  AZI     .10184204 03
   CKM     .34972796 03  CKC     .28345997 03  CKT     .34972796 03  PSS     .10708370 03  PSM     .18936977 02
   UT      .18000000 02  DHA     .41010014-02  DDE    -.97561570-05  DEL     .34369801-02  DAZ    -.17764256-02
   ET      .17999055 02  RGE     .17349964 06  DRG     .13956347 01  DDR    -.47274666-05  SLS     .19688004 03
   RDI     .63725296 04  PHI    -.31210140 02  THI     .13688502 03  SPS     .10714682 03  POL     .16198323 03
   DT      .57873242 00  RF1     .00000000 00  RF2     .00000000 00  BF1     .14552407 06
   ESS1   -.12548004 03  ESS2   -.14908004 03  F1      .10590345 06  F2      .10893871 06  PRA     .28828136 03
   RF      .00000000 00  DOP     .30276728-07
```

RANGER-4 ORBIT 042362 STATION PRINTS BK

0 DAYS 19 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.16966435 APRIL 24,1962 16 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.48879863 05	Y	-.16078423 06	Z	-.71120975 05	DX	.82332155 00	DY	-.14336245 01	DZ	-.53961170 00
R	.18248014 06	DEC	-.22938719 02	RA	.28690975 03	V	.17390567 01	PTH	.76932690 02	AZ	.70540854 02
R	.18248014 06	LAT	-.22938719 02	LON	.19362804 03	VE	.12004516 02	PTE	.81124050 01	AZE	.27063151 03
XS	.12476526 09	YS	.77193826 08	ZS	.33473073 08	DXS	-.16156906 02	DYS	.22756561 02	DZS	.98668123 01
XM	-.11928393 05	YM	-.36226432 06	ZM	-.13055865 06	DXM	.10174571 01	DYM	.33730380-01	DZM	-.55991790-01
XT	-.11928393 05	YT	-.36226432 06	ZT	-.13055865 06	DXT	.10174571 01	DYT	.33730380-01	DZT	-.55991790-01
RS	.15048489 09	VS	.29601700 02	RM	.38525742 06	VM	.10195547 01	RT	.38525742 06	VT	.10195547 01
GED	-.23078719 02	ALT	.17610522 06	LOS	.29846389 03	RAS	.31745594 02	RAM	.26811407 03	LOM	.17483237 03
DUT	.34000000 02	DT	.19200000 04	DR	.16940241 01	SHA	.17309391 06	DES	.12852079 02	DEM	-.19809064 02

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R .18248014 06 LAT -.22938719 02 LONG .19362804 03

MIN	.11400000 04	HA	.50947496 02	DEC	-.24419410 02	ELE	.13381988 02	AZI	.22662167 03
CKM	.34768530 03	CKC	.28153311 03	CKT	.34768530 03	PSS	.10986975 03	PSM	.17265535 02
UT	.19000000 02	DHA	.41189516-02	DDE	.92754360-04	DEL	-.23786237-02	DAZ	.29821575-02
ET	.18999055 02	RGE	.18090007 06	DRG	.19502720 01	DDR	.46210925-05	SLS	.19724284 03
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.10993450 03	POL	.31625241 03
DT	.60341758 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14374773 06		
ESS1	-.12584284 03	ESS2	-.14944284 03	F1	.10763571 06	F2	.11249103 06	PRA	.28552959 03
RF	.00000000 00	DOP	-.29595461-07						

OOMJET 1 UNIFORM TIME TAU .00000000 00

R .18248014 06 LAT -.22938719 02 LONG .19362804 03

MIN	.11400000 04	HA	.30167535 03	DEC	-.22328675 02	ELE	.37755985 02	AZI	.95315109 02
CKM	.34955704 03	CKC	.28340484 03	CKT	.34955704 03	PSS	.10693520 03	PSM	.18721606 02
UT	.19000000 02	DHA	.41373285-02	DDE	-.38212130-05	DEL	.35248208-02	DAZ	-.18855703-02
ET	.18999055 02	RGE	.17850867 06	DRG	.13913463 01	DDR	.22382843-05	SLS	.19712725 03
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10700020 03	POL	.16427398 03
DT	.59544076 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14553781 06		
ESS1	-.12572726 03	ESS2	-.14932725 03	F1	.10588959 06	F2	.10891124 06	PRA	.28849137 03
RF	.00000000 00	DOP	-.14334935-07						

0 DAYS 20 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.21133102 APRIL 24,1962 17 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.51823083 05	Y	-.16587884 06	Z	-.73034158 05	DX	.81187173 00	DY	-.13971235 01	DZ	-.52346107 00
R	.18850838 06	DEC	-.22794799 02	RA	.28734960 03	V	.16985586 01	PTH	.77056948 02	AZ	.70358209 02
R	.18850838 06	LAT	-.22794799 02	LON	.17902684 03	VE	.12425759 02	PTE	.76559094 01	AZE	.27059498 03
XS	.12470706 09	YS	.77275734 08	ZS	.33508587 08	DXS	-.16174392 02	DYS	.22745845 02	DZS	.98621571 01
XM	-.82651826 04	YM	-.36212632 06	ZM	-.13075425 06	DXM	.10176376 01	DYM	.42938858-01	DZM	-.52673476-01
XT	-.82651826 04	YT	-.36212632 06	ZT	-.13075425 06	DXT	.10176376 01	DYT	.42938858-01	DZT	-.52673476-01
RS	.15048659 09	VS	.29601461 02	RM	.38509798 06	VM	.10199042 01	RT	.38509798 06	VT	.10199042 01
GED	-.22934117 02	ALT	.18213341 06	LOS	.28346199 03	RAS	.31784756 02	RAM	.26869250 03	LOM	.16036974 03
DUT	.34000000 02	DT	.19200000 04	DR	.16554037 01	SHA	.17920251 06	DES	.12865800 02	DEM	-.19848546 02

RANGER-4 ORBIT 042362 STATION PRINTS BK

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R	.18850838 06		LAT	-.22794799 02		LONG	.17902684 03				
MIN	.12000000 04	HA	.65735362 02	DEC	-.24085747 02	ELE	.41361755 01	AZI	.23655941 03		
CKM	.34789791 03	CKC	.28185824 03	CKT	.34789791 03	PSS	.10964772 03	PSM	.16970395 02		
UT	.20000000 02	DHA	.40962389-02	DDE	.92163880-04	DEL	-.27347776-02	DAZ	.25589416-02		
ET	.19999055 02	RGE	.18794161 06	DRG	.19589550 01	DDR	.48239894-07	SLS	.19757453 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.10971509 03	POL	.32409099 03		
DT	.62690566 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14371992 06				
ESS1	-.12617453 03	ESS2	-.14977453 03	F1	.10766342 06	F2	.11254664 06	PRA	.28578279 03		
RF	.00000000 00	DOP	-.30894901-09								

DDMJET 1 UNIFORM TIME TAU .00000000 00

R	.18850838 06		LAT	-.22794799 02		LONG	.17902684 03				
MIN	.12000000 04	HA	.31662400 03	DEC	-.22328505 02	ELE	.50526430 02	AZI	.87884074 02		
CKM	.34942991 03	CKC	.28339024 03	CKT	.34942991 03	PSS	.10689144 03	PSM	.18431020 02		
UT	.20000000 02	DHA	.41661258-02	DDE	.42141831-05	DEL	.35591314-02	DAZ	-.23246631-02		
ET	.19999055 02	RGE	.18354577 06	DRG	.14107022 01	DDR	.83320751-05	SLS	.19736896 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10695828 03	POL	.16480163 03		
DT	.61224271 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14547582 06				
ESS1	-.12596896 03	ESS2	-.14956896 03	F1	.10595888 06	F2	.10903521 06	PRA	.28858378 03		
RF	.00000000 00	DOP	-.53362188-07								

0 DAYS 21 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.25299768 APRIL 24,1962 18 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.54725856 05	Y	-.17084629 06	Z	-.74891195 05	DX	.80084006 00	DY	-.13629363 01	DZ	-.50839712 00
R	.19440181 06	DEC	-.22658589 02	RA	.28776141 03	V	.16605444 01	PTH	.77170382 02	AZ	.70186146 02
R	.19440181 06	LAT	-.22658589 02	LON	.16439758 03	VE	.12838074 02	PTE	.72452179 01	AZE	.27056230 03
XS	.12464879 09	YS	.77357606 08	ZS	.33544084 08	DXS	-.16191870 02	DYS	.22735116 02	DZS	.98574968 01
XM	-.46014791 04	YM	-.36195515 06	ZM	-.13093788 06	DXM	.10177256 01	DYM	.52155428-01	DZM	-.49345921-01
XT	-.46014791 04	YT	-.36195515 06	ZT	-.13093788 06	DXT	.10177256 01	DYT	.52155428-01	DZT	-.49345921-01
RS	.15048829 09	VS	.29601223 02	RM	.38493822 06	VM	.10202551 01	RT	.38493822 06	VT	.10202551 01
GED	-.22797259 02	ALT	.18802681 06	LOS	.26846009 03	RAS	.31823922 02	RAM	.26927164 03	LOM	.14590781 03
DUT	.34000000 02	DT	.19200000 04	DR	.16190834 01	SHA	.18517289 06	DES	.12879516 02	DEM	-.19886194 02

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R	.19440181 06		LAT	-.22658589 02		LONG	.16439758 03				
MIN	.12600000 04	HA	.80439580 02	DEC	-.23758951 02	ELE	-.61663758 01	AZI	.24520157 03		
CKM	.34809645 03	CKC	.28216627 03	CKT	.34809645 03	PSS	.10934842 03	PSM	.16707789 02		
UT	.21000000 02	DHA	.40728249-02	DDE	.88977709-04	DEL	-.29722860-02	DAZ	.22644985-02		
ET	.20999055 02	RGE	.19498301 06	DRG	.19497498 01	DDR	-.52483326-05	SLS	.19789400 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.10941844 03	POL	.33016680 03		
DT	.65039323 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14374940 06				
ESS1	-.12649400 03	ESS2	-.15009400 03	F1	.10762185 06	F2	.11248768 06	PRA	.28611964 03		
RF	.00000000 00	DOP	.33612577-07								

RANGER-4 ORBIT 042362 STATION PRINTS BK
OOMJET 1 UNIFORM TIME TAU .00000000 00

R	.19440181 06		LAT	-.22658589 02		LONG	.16439758 03				
MIN	.12600000 04	HA	.33166112 03	DEC	-.22296626 02	ELE	.63263790 02	AZI	.77485243 02		
CKM	.34934952 03	CKC	.28341934 03	CKT	.34934952 03	PSS	.10692475 03	PSM	.18080823 02		
UT	.21000000 02	DHA	.41863398-02	DDE	.13668841-04	DEL	.34895007-02	DAZ	-.37368765-02		
ET	.20999055 02	RGE	.18868944 06	DRG	.14497733 01	DDR	.13125761-04	SLS	.19760902 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10699345 03	POL	.16177748 03		
DT	.62940014 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14535068 06				
ESS1	-.12620902 03	ESS2	-.14980902 03	F1	.10608360 06	F2	.10928545 06	PRA	.28858772 03		
RF	.00000000 00	DOP	-.84063010-07								

0 DAYS 22 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.29466435 APRIL 24,1962 19 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.57589618 05	Y	-.17569445 06	Z	-.76695773 05	DX	.79019763 00	DY	-.13308137 01	DZ	-.49429798 00
R	.20016830 06	DEC	-.22529338 02	RA	.28814825 03	V	.16247486 01	PTH	.77274305 02	AZ	.70023224 02
R	.20016829 06	LAT	-.22529338 02	LON	.14974336 03	VE	.13241926 02	PTE	.68738288 01	AZE	.27053289 03
XS	.12459047 09	YS	.77439436 08	ZS	.33579554 08	DXS	-.16209340 02	DYS	.22724378 02	DZS	.98528323 01
XM	-.93763626 03	YM	-.36175079 06	ZM	-.13110952 06	DXM	.10177210 01	DYM	.61379223-01	DZM	-.46009426-01
XT	-.93763626 03	YT	-.36175079 06	ZT	-.13110952 06	DXT	.10177210 01	DYT	.61379223-01	DZT	-.46009426-01
RS	.15048999 09	VS	.29600985 02	RM	.38477813 06	VM	.10206078 01	RT	.38477813 06	VT	.10206078 01
GED	-.22667389 02	ALT	.19379326 06	LOS	.25345819 03	RAS	.31863092 02	RAM	.26985149 03	LOM	.13144659 03
DUT	.34000000 02	DT	.19200000 04	DR	.15848380 01	SHA	.19101310 06	DES	.12893225 02	DEM	-.19921999 02

OOMJET 1 UNIFORM TIME TAU .00000000 00

R	.20016829 06		LAT	-.22529338 02		LONG	.14974336 03				
MIN	.13200000 04	HA	.34675468 03	DEC	-.22229351 02	ELE	.75167808 02	AZI	.55947066 02		
CKM	.34931561 03	CKC	.28349213 03	CKT	.34931561 03	PSS	.10700528 03	PSM	.17687649 02		
UT	.22000000 02	DHA	.41974423-02	DDE	.23736679-04	DEL	.29590777-02	DAZ	-.98371287-02		
ET	.21999055 02	RGE	.19400145 06	DRG	.15032341 01	DDR	.16279392-04	SLS	.19785017 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10707588 03	POL	.14724002 03		
DT	.64711908 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14517946 06				
ESS1	-.12645017 03	ESS2	-.15005017 03	F1	.10623604 06	F2	.10962786 06	PRA	.28853523 03		
RF	.00000000 00	DOP	-.10426022-06								

0 DAYS 23 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.33633102 APRIL 24,1962 20 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.60415724 05	Y	-.18043037 06	Z	-.78451172 05	DX	.77991775 00	DY	-.13005442 01	DZ	-.48106044 00
R	.20581488 06	DEC	-.22406389 02	RA	.28851273 03	V	.15909450 01	PTH	.77369855 02	AZ	.69868185 02
R	.20581488 06	LAT	-.22406390 02	LON	.13506676 03	VE	.13637748 02	PTE	.65364107 01	AZE	.27050631 03
XS	.12453208 09	YS	.77521227 08	ZS	.33615027 08	DXS	-.16226802 02	DYS	.22713628 02	DZS	.98481628 01
XM	.27260193 04	YM	-.36151321 06	ZM	-.13126914 06	DXM	.10176235 01	DYM	.70609444-01	DZM	-.42664262-01
XT	.27260193 04	YT	-.36151321 06	ZT	-.13126914 06	DXT	.10176235 01	DYT	.70609444-01	DZT	-.42664262-01
RS	.15049169 09	VS	.29600748 02	RM	.38461776 06	VM	.10209620 01	RT	.38461776 06	VT	.10209620 01
GED	-.22543850 02	ALT	.19943981 06	LOS	.23845630 03	RAS	.31902263 02	RAM	.27043203 03	LOM	.11698607 03
DUT	.34000000 02	DT	.19200000 04	DR	.15524471 01	SHA	.19673034 06	DES	.12906928 02	DEM	-.19955953 02

RANGER-4 ORBIT 042362 STATION PRINTS BK

DOMJET			1	UNIFORM TIME		TAU .00000000 00					
R	.20581488 06			LAT	-.22406390 02			LONG	.13506676 03		
MIN	.13800000 04	HA	.18718681 01	DEC	-.22126002 02	ELE	.80763686 02	AZI	.34913305 03		
CKM	.34932473 03	CKC	.28360532 03	CKT	.34932473 03	PSS	.10710282 03	PSM	.17268173 02		
UT	.23000000 02	DHA	.41995329-02	DDE	.33571301-04	DEL	-.71017838-03	DAZ	-.23830001-01		
ET	.22999055 02	RGE	.19952242 06	DRG	.15647567 01	DDR	.17581654-04	SLS	.19809390 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10717539 03	POL	.87285337 02		
DT	.66553507 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14498242 06				
ESS1	-.12669390 03	ESS2	-.15029390 03	F1	.10643005 06	F2	.11002190 06	PRA	.28845911 03		
RF	.00000000 00	DOP	-.11260047-06								

JOBJET			1	UNIFORM TIME		TAU .00000000 00					
R	.20581488 06			LAT	-.22406390 02			LONG	.13506676 03		
MIN	.13800000 04	HA	.25098282 03	DEC	-.21506276 02	ELE	-.65409664 01	AZI	.11770397 03		
CKM	.34974635 03	CKC	.28402694 03	CKT	.34974635 03	PSS	.10546305 03	PSM	.17705761 02		
UT	.23000000 02	DHA	.40525793-02	DDE	-.12941171-04	DEL	.32387795-02	DAZ	-.19430895-02		
ET	.22999055 02	RGE	.20644364 06	DRG	.11938747 01	DDR	-.17732005-04	SLS	.19839010 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10553878 03	POL	.15706034 03		
DT	.68862176 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14617025 06				
ESS1	-.12699010 03	ESS2	-.15059010 03	F1	.10529369 06	F2	.10764648 06	PRA	.29014792 03		
RF	.00000000 00	DOP	.11356338-06								

1 DAYS 0 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.37799768 APRIL 24,1962 21 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.63205444 05	Y	-.18506037 06	Z	-.80160331 05	DX	.76997578 00	DY	-.12719464 01	DZ	-.46859648 00
R	.21134793 06	DEC	-.22289175 02	RA	.28885707 03	V	.15589397 01	PTH	.77458014 02	AZ	.69719937 02
R	.21134793 06	LAT	-.22289175 02	LON	.12037003 03	VE	.14025933 02	PTE	.62285476 01	AZE	.27048217 03
XS	.12447363 09	YS	.77602986 08	ZS	.33650474 08	DXS	-.16244257 02	DYS	.22702866 02	DZS	.98434883 01
XM	.63891708 04	YM	-.36124240 06	ZM	-.13141659 06	DXM	.10174330 01	DYM	.79845317-01	DZM	-.39310692-01
XT	.63891708 04	YT	-.36124240 06	ZT	-.13141669 06	DXT	.10174330 01	DYT	.79845317-01	DZT	-.39310692-01
RS	.15049339 09	VS	.29600511 02	RM	.38445707 06	VM	.10213180 01	RT	.38445707 06	VT	.10213180 01
GED	-.22426069 02	ALT	.20497283 06	LOS	.22345441 03	RAS	.31941441 02	RAM	.27101326 03	LOM	.10252623 03
DUT	.34000000 02	DT	.19200000 04	DR	.15217390 01	SHA	.20233115 06	DES	.12920626 02	DEM	-.19988046 02

DOMJET			1	UNIFORM TIME		TAU .00000000 00					
R	.21134793 06			LAT	-.22289175 02			LONG	.12037003 03		
MIN	.14400000 04	HA	.16981372 02	DEC	-.21988872 02	ELE	.72269469 02	AZI	.29721977 03		
CKM	.34937050 03	CKC	.28375276 03	CKT	.34937050 03	PSS	.10718891 03	PSM	.16838060 02		
UT	.24000000 02	DHA	.41933513-02	DDE	.42381454-04	DEL	-.32135309-02	DAZ	-.71895628-02		
ET	.23999055 02	RGE	.20526918 06	DRG	.15275240 01	DDR	.16974382-04	SLS	.19834054 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10726354 03	POL	.42223158 02		
DT	.68470419 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14478140 06				
ESS1	-.12694055 03	ESS2	-.15054054 03	F1	.10663792 06	F2	.11042390 06	PRA	.28839068 03		
RF	.00000000 00	DOP	-.10871124-06								

CASE 1 SPACE TRAJECTORIES 19

RANGER-4 ORBIT 042362 STATION PRINTS BK

1 DAYS 2 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.46133102 APRIL 24,1962 23 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.68680322 05	Y	-.19402505 06	Z	-.83450271 05	DX	.75101575 00	DY	-.12191626 01	DZ	-.44569748 00
R	.22209605 06	DEC	-.22070029 02	RA	.28949277 03	V	.14996761 01	PTH	.77615504 02	AZ	.69440062 02
R	.22209605 06	LAT	-.22070029 02	LON	.90923601 02	VE	.14780821 02	PTE	.56873474 01	AZE	.27044002 03
XS	.12435654 09	YS	.77766374 08	ZS	.33721315 08	DXS	-.16279143 02	DYS	.22681312 02	DZS	.98341262 01
XM	.13712554 05	YM	-.36060098 06	ZM	-.13167551 06	DXM	.10167718 01	DYM	.98330548-01	DZM	-.32579533-01
XT	.13712554 05	YT	-.36060098 06	ZT	-.13167551 06	DXT	.10167718 01	DYT	.98330548-01	DZT	-.32579533-01
RS	.15049679 09	VS	.29600041 02	RM	.38413479 06	VM	.10220348 01	RT	.38413479 06	VT	.10220348 01
GED	-.22205858 02	ALT	.21572089 06	LOS	.19345064 03	RAS	.32019803 02	RAM	.27217773 03	LOM	.73608566 02
DUT	.34000000 02	DT	.19200000 04	DR	.14647791 01	SHA	.21320659 06	DES	.12948000 02	DEM	-.20046620 02

DOMJET 1 UNIFORM TIME TAU .00000000 00

R	.22209605 06	LAT	-.22070029 02	LONG	.90923601 02						
MIN	.15600000 04	HA	.47072414 02	DEC	-.21634912 02	ELE	.47097649 02	AZI	.27107097 03		
CKM	.34953573 03	CKC	.28411478 03	CKT	.34953573 03	PSS	.10723253 03	PSM	.15997591 02		
UT	.26000000 02	DHA	.41617554-02	DDE	.54524394-04	DEL	-.35801911-02	DAZ	-.21544382-02		
ET	.25999055 02	RGE	.21738570 06	DRG	.17304316 01	DDR	.10563321-04	SLS	.19883869 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10731154 03	POL	.30518895 02		
DT	.72512055 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14445181 06				
ESS1	-.12743869 03	ESS2	-.15103869 03	F1	.10695666 06	F2	.11108300 06	PRA	.28838177 03		
RF	.00000000 00	DOP	-.67652045-07								

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.22209605 06	LAT	-.22070029 02	LONG	.90923601 02						
MIN	.15600000 04	HA	.29531581 03	DEC	-.21646162 02	ELE	.31211432 02	AZI	.10076248 03		
CKM	.34918603 03	CKC	.28376508 03	CKT	.34918603 03	PSS	.10487878 03	PSM	.17007970 02		
UT	.26000000 02	DHA	.41536495-02	DDE	-.91405026-05	DEL	.36786406-02	DAZ	-.13700216-02		
ET	.25999055 02	RGE	.21872534 06	DRG	.11203420 01	DDR	.41781999-05	SLS	.19889205 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10495922 03	POL	.17047572 03		
DT	.72958910 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14640576 06				
ESS1	-.12749205 03	ESS2	-.15109205 03	F1	.10505810 06	F2	.10717552 06	PRA	.29093813 03		
RF	.00000000 00	DOP	-.26758987-07								

1 DAYS 3 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.50299768 APRIL 25,1962 00 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.71367603 05	Y	-.19836968 06	Z	-.85035607 05	DX	.74195728 00	DY	-.11947235 01	DZ	-.43514049 00
R	.22732118 06	DEC	-.21967272 02	RA	.28978724 03	V	.14721454 01	PTH	.77686283 02	AZ	.69306788 02
R	.22732117 06	LAT	-.21967273 02	LON	.76176957 02	VE	.15148169 02	PTE	.54482890 01	AZE	.27042152 03
XS	.12429790 09	YS	.77848014 08	ZS	.33756713 08	DXS	-.16296576 02	DYS	.22670517 02	DZS	.98294374 01
XM	.17372139 05	YM	-.36023034 06	ZM	-.13178672 06	DXM	.10163009 01	DYM	.10757798 00	DZM	-.29202703-01
XT	.17372139 05	YT	-.36023034 06	ZT	-.13178672 06	DXT	.10163009 01	DYT	.10757798 00	DZT	-.29202703-01
RS	.15049849 09	VS	.29599807 02	RM	.38397321 06	VM	.10223959 01	RT	.38397321 06	VT	.10223959 01
GED	-.22102601 02	ALT	.22094599 06	LOS	.17844871 03	RAS	.32058991 02	RAM	.27276095 03	LOM	.59150674 02
DUT	.34000000 02	DT	.19200000 04	DR	.14382780 01	SHA	.21849150 06	DES	.12961680 02	DEM	-.20073085 02

RANGER-4 ORBIT 042362 STATION PRINTS BK

OOMJET 1 UNIFORM TIME TAU .00000000 00

R	.22732117 06		LAT	-.21967273 02		LONG	.76176967 02				
MIN	.16200000 04	HA	.62016243 02	DEC	-.21433134 02	ELE	.34257241 02	AZI	.26401331 03		
CKM	.34963414 03	CKC	.28430865 03	CKT	.34963414 03	PSS	.10715679 03	PSM	.15605615 02		
UT	.27000000 02	DHA	.41399497-02	DDE	.57173694-04	DEL	-.35446960-02	DAZ	-.18305089-02		
ET	.26999055 02	RGE	.22367299 06	DRG	.17593733 01	DDR	.53440250-05	SLS	.19908634 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10723812 03	POL	.31493111 02		
DT	.74609268 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14435912 06				
ESS1	-.12768634 03	ESS2	-.15128634 03	F1	.10703981 06	F2	.11126837 06	PRA	.28847906 03		
RF	.00000000 00	DOP	-.34225433-07								

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.22732117 06		LAT	-.21967273 02		LONG	.76176967 02				
MIN	.16200000 04	HA	.31031761 03	DEC	-.21668903 02	ELE	.44586674 02	AZI	.95764291 02		
CKM	.34905842 03	CKC	.28373292 03	CKT	.34905842 03	PSS	.10488698 03	PSM	.16659100 02		
UT	.27000000 02	DHA	.41797068-02	DDE	-.31666130-05	DEL	.37469341-02	DAZ	-.14378291-02		
ET	.26999055 02	RGE	.22280030 06	DRG	.11474764 01	DDR	.10736867-04	SLS	.19905238 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10496892 03	POL	.17295454 03		
DT	.74318171 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14631885 06				
ESS1	-.12765238 03	ESS2	-.15125238 03	F1	.10514125 06	F2	.10734931 06	PRA	.29097744 03		
RF	.00000000 00	DOP	-.68763512-07								

1 DAYS 4 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.54466435 APRIL 25,1962 01 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.74022740 05	Y	-.20262845 06	Z	-.86583907 05	DX	.73315524 00	DY	-.11714440 01	DZ	-.42511014 00
R	.23245306 06	DEC	-.21868591 02	RA	.29006789 03	V	.14458618 01	PTH	.77752604 02	AZ	.69176964 02
R	.23245306 06	LAT	-.21868591 02	LON	.61416543 02	VE	.15509179 02	PTE	.52271488 01	AZE	.27040448 03
XS	.12423920 09	YS	.77929613 08	ZS	.33792092 08	DXS	-.16314000 02	DYS	.22659712 02	DZS	.98247445 01
XM	.21029844 05	YM	-.35982640 06	ZM	-.13188576 06	DXM	.10157360 01	DYM	.11682800 00	DZM	-.25818425-01
XT	.21029844 05	YT	-.35982640 06	ZT	-.13188576 06	DXT	.10157360 01	DYT	.11682800 00	DZT	-.25818425-01
RS	.15050019 09	VS	.29599574 02	RM	.38381134 06	VM	.10227585 01	RT	.38381134 06	VT	.10227585 01
GED	-.22003435 02	ALT	.22607785 06	LOS	.16344683 03	RAS	.32098181 02	RAM	.27334481 03	LOM	.44693466 02
DUT	.34000000 02	DT	.19200000 04	DR	.14129550 01	SHA	.22368073 06	DES	.12975352 02	DEM	-.20097658 02

OOMJET 1 UNIFORM TIME TAU .00000000 00

R	.23245306 06		LAT	-.21868591 02		LONG	.61416543 02				
MIN	.16800000 04	HA	.76878382 02	DEC	-.21226125 02	ELE	.21629114 02	AZI	.25757603 03		
CKM	.34972889 03	CKC	.28449710 03	CKT	.34972889 03	PSS	.10700439 03	PSM	.15239263 02		
UT	.28000000 02	DHA	.41167142-02	DDE	.57441895-04	DEL	-.34639648-02	DAZ	-.17774620-02		
ET	.27999055 02	RGE	.23002867 06	DRG	.17679349 01	DDR	-.68565080-06	SLS	.19932971 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10708810 03	POL	.34009396 02		
DT	.76729294 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14433170 06				
ESS1	-.12792971 03	ESS2	-.15152971 03	F1	.10706752 06	F2	.11132320 06	PRA	.28865798 03		
RF	.00000000 00	DOP	.43912023-08								

CASE 1 SPACE TRAJECTORIES 21

RANGER-4 ORBIT 042362 STATION PRINTS BK
JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.23245306 06		LAT	-.21868591 02		LONG	.61416543 02				
MIN	.16800000 04	HA	.32540208 03	DEC	-.21666931 02	ELE	.58150116 02	AZI	.90045892 02		
CKM	.34896933 03	CKC	.28373753 03	CKT	.34896933 03	PSS	.10496764 03	PSM	.16264397 02		
UT	.28000000 02	DHA	.41993988-02	DDE	.44934785-05	DEL	.37817677-02	DAZ	-.18267829-02		
ET	.27999055 02	RGE	.22701315 06	DRG	.11962174 01	DDR	.16106477-04	SLS	.19921509 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10505109 03	POL	.17403882 03		
DT	.75723426 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14616275 06				
ESS1	-.12781509 03	ESS2	-.15141509 03	F1	.10529369 06	F2	.10766149 06	PRA	.29093404 03		
RF	.00000000 00	DOP	-.10315280-06								

1 DAYS 5 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.58633102 APRIL 25,1962 02 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.76646623 05	Y	-.20680535 06	Z	-.88096979 05	DX	.72459295 00	DY	-.11492337 01	DZ	-.41556305 00
R	.23749576 06	DEC	-.21773680 02	RA	.29033582 03	V	.14207271 01	PTH	.77815036 02	AZ	.69049914 02
R	.23749576 06	LAT	-.21773680 02	LON	.46643402 02	VE	.15864118 02	PTE	.50220109 01	AZE	.27038873 03
XS	.12418043 09	YS	.78011172 08	ZS	.33827454 08	DXS	-.16331417 02	DYS	.22648896 02	DZS	.98200470 01
XM	.24685348 05	YM	-.35938917 06	ZM	-.13197250 06	DXM	.10150770 01	DYM	.12607949 00	DZM	-.22427186-01
XT	.24685348 05	YT	-.35938917 06	ZT	-.13197260 06	DXT	.10150770 01	DYT	.12607949 00	DZT	-.22427186-01
RS	.15050189 09	VS	.29599341 02	RM	.38364920 06	VM	.10231228 01	RT	.38364920 06	VT	.10231228 01
GED	-.21908057 02	ALT	.23112052 06	LOS	.14844496 03	RAS	.32137374 02	RAM	.27392930 03	LOM	.30236883 02
DUT	.34000000 02	DT	.19200000 04	DR	.13887200 01	SHA	.22877842 06	DES	.12989018 02	DEM	-.20120330 02

OOMJET 1 UNIFORM TIME TAU .00000000 00

R	.23749576 06		LAT	-.21773680 02		LONG	.46643402 02				
MIN	.17400000 04	HA	.91657053 02	DEC	-.21022232 02	ELE	.93694834 01	AZI	.25102615 03		
CKM	.34981040 03	CKC	.28467072 03	CKT	.34981040 03	PSS	.10677452 03	PSM	.14899719 02		
UT	.29000000 02	DHA	.40938625-02	DDE	.55480104-04	DEL	-.33388256-02	DAZ	-.18847872-02		
ET	.28999055 02	RGE	.23637507 06	DRG	.17540015 01	DDR	-.70778582-05	SLS	.19956610 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10686065 03	POL	.37746852 02		
DT	.78846224 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14437633 06				
ESS1	-.12816610 03	ESS2	-.15176610 03	F1	.10702595 06	F2	.11123396 06	PRA	.28892038 03		
RF	.00000000 00	DOP	.45329645-07								

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.23749576 06		LAT	-.21773680 02		LONG	.46643402 02				
MIN	.17400000 04	HA	.34054443 03	DEC	-.21635291 02	ELE	.71737110 02	AZI	.81107400 02		
CKM	.34892023 03	CKC	.28378054 03	CKT	.34892023 03	PSS	.10509717 03	PSM	.15834050 02		
UT	.29000000 02	DHA	.42117322-02	DDE	.13198632-04	DEL	.37445684-02	DAZ	-.36463103-02		
ET	.28999055 02	RGE	.23143300 06	DRG	.12615229 01	DDR	.19880302-04	SLS	.19938257 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10518220 03	POL	.17147162 03		
DT	.77197729 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14595360 06				
ESS1	-.12798257 03	ESS2	-.15158257 03	F1	.10548770 06	F2	.10807975 06	PRA	.29083276 03		
RF	.00000000 00	DOP	-.12732199-06								

RANGER-4 ORBIT 042362 STATION PRINTS BK

1 DAYS 6 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.62799768 APRIL 25,1962 03 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.79240097 05	Y	-.21090410 06	Z	-.89576489 05	DX	.71625488 00	DY	-.11280128 01	DZ	-.40646103 00
R	.24245305 06	DEC	-.21682263 02	RA	.29059201 03	V	.13966547 01	PTH	.77874104 02	AZ	.68924990 02
R	.24245305 06	LAT	-.21682263 02	LON	.31858535 02	VE	.16213235 02	PTE	.48312250 01	AZE	.27037415 03
XS	.12412160 09	YS	.78092693 08	ZS	.33862800 08	DXS	-.16348826 02	DYS	.22638069 02	DZS	.98153442 01
XM	.28338320 05	YM	-.35891863 06	ZM	-.13204722 06	DXM	.10143237 01	DYM	.13533162 00	DZM	-.19029269-01
XT	.28338320 05	YT	-.35891863 06	ZT	-.13204722 06	DXT	.10143237 01	DYT	.13533162 00	DZT	-.19029269-01
RS	.15050359 09	VS	.29599109 02	RM	.38348678 06	VM	.10234888 01	RT	.38348678 06	VT	.10234888 01
GED	-.21816190 02	ALT	.23607779 06	LOS	.13344309 03	RAS	.32176572 02	RAM	.27451440 03	LOM	.15780922 02
DUT	.34000000 02	DT	.19200000 04	DR	.13654931 01	SHA	.23378843 06	DES	.13002680 02	DEM	-.20141095 02

DOMJET 1 UNIFORM TIME TAU .00000000 00

R	.24245305 06	LAT	-.21682263 02	LONG	.31858535 02						
MIN	.18000000 04	HA	.10635656 03	DEC	-.20829013 02	ELE	-.23418541 01	AZI	.24384023 03		
CKM	.34987066 03	CKC	.28482168 03	CKT	.34987066 03	PSS	.10647205 03	PSM	.14585576 02		
UT	.30000000 02	DHA	.40729771-02	DDE	.51566494-04	DEL	-.31560990-02	DAZ	-.21309470-02		
ET	.29999055 02	RGE	.24262981 06	DRG	.17170744 01	DDR	-.13387373-04	SLS	.19979295 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10656059 03	POL	.42746359 02		
DT	.80932584 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14449459 06				
ESS1	-.12839295 03	ESS2	-.15199295 03	F1	.10690123 06	F2	.11099745 06	PRA	.28926194 03		
RF	.00000000 00	DOP	.85738491-07								

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.24245305 06	LAT	-.21682263 02	LONG	.31858535 02						
MIN	.18000000 04	HA	.35571717 03	DEC	-.21571524 02	ELE	.84280587 02	AZI	.44178047 02		
CKM	.34890971 03	CKC	.28386072 03	CKT	.34890971 03	PSS	.10525002 03	PSM	.15379318 02		
UT	.30000000 02	DHA	.42162654-02	DDE	.22216084-04	DEL	.26304216-02	DAZ	-.29177551-01		
ET	.29999055 02	RGE	.23610846 06	DRG	.13370919 01	DDR	.21773209-04	SLS	.19955630 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10533670 03	POL	.14058382 03		
DT	.78757293 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14571157 06				
ESS1	-.12815630 03	ESS2	-.15175630 03	F1	.10573715 06	F2	.10856375 06	PRA	.29070109 03		
RF	.00000000 00	DOP	-.13944499-06								

1 DAYS 7 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.66966435 APRIL 25,1962 04 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.81803926 05	Y	-.21492815 06	Z	-.91023987 05	DX	.70812635 00	DY	-.11077110 01	DZ	-.39777037 00
R	.24732843 06	DEC	-.21594099 02	RA	.29083735 03	V	.13735676 01	PTH	.77930319 02	AZ	.68801570 02
R	.24732843 06	LAT	-.21594100 02	LON	.17062809 02	VE	.16556765 02	PTE	.46533583 01	AZE	.27036059 03
XS	.12406271 09	YS	.78174175 08	ZS	.33898127 08	DXS	-.16366227 02	DYS	.22627231 02	DZS	.98106372 01
XM	.31988395 05	YM	-.35841478 06	ZM	-.13210950 06	DXM	.10134761 01	DYM	.14458348 00	DZM	-.15624995-01
XT	.31988395 05	YT	-.35841478 06	ZT	-.13210960 06	DXT	.10134761 01	DYT	.14458348 00	DZT	-.15624995-01
RS	.15050529 09	VS	.29598877 02	RM	.38332409 06	VM	.10238566 01	RT	.38332409 06	VT	.10238566 01
GED	-.21727590 02	ALT	.24095315 06	LOS	.11844123 03	RAS	.32215773 02	RAM	.27510011 03	LOM	.13255653 01
DUT	.34000000 02	DT	.19200000 04	DR	.13432035 01	SHA	.23871431 06	DES	.13016333 02	DEM	-.20159946 02

RANGER-4 ORBIT 042362 STATION PRINTS BK
JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.24732843 06		LAT	-.21594100 02		LONG	.17062809 02				
MIN	.18600000 04	HA	.10892356 02	DEC	-.21475857 02	ELE	.79153906 02	AZI	.29085339 03		
CKM	.34893360 03	CKC	.28397403 03	CKT	.34893360 03	PSS	.10540052 03	PSM	.14911568 02		
UT	.31000000 02	DHA	.42131674-02	DDE	.30800632-04	DEL	-.35597886-02	DAZ	-.87328491-02		
ET	.30999055 02	RGE	.24106392 06	DRG	.14158689 01	DDR	.21654533-04	SLS	.19973671 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10548895 03	POL	.33441762 02		
DT	.80410257 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14545927 06				
ESS1	-.12833671 03	ESS2	-.15193671 03	F1	.10597274 06	F2	.10906830 06	PRA	.29056697 03		
RF	.00000000 00	DOP	-.13868493-06								

1 DAYS 8 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.71133102 APRIL 25,1962 05 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.84338860 05	Y	-.21888065 06	Z	-.92440889 05	DX	.70019384 00	DY	-.10882662 01	DZ	-.38946117 00		
R	.25212516 06	DEC	-.21508965 02	RA	.29107252 03	V	.13513973 01	PTH	.77984153 02	AZ	.68679023 02		
R	.25212516 06	LAT	-.21508965 02	LON	.22570095 01	VE	.16894924 02	PTE	.44871678 01	AZE	.27034797 03		
XS	.12400376 09	YS	.78255621 08	ZS	.33933440 08	DXS	-.16383621 02	DYS	.22616381 02	DZS	.98059252 01		
XM	.35635263 05	YM	-.35787763 06	ZM	-.13215971 06	DXM	.10125339 01	DYM	.15383429 00	DZM	-.12214629-01		
XT	.35635263 05	YT	-.35787763 06	ZT	-.13215971 06	DXT	.10125339 01	DYT	.15383429 00	DZT	-.12214629-01		
RS	.15050699 09	VS	.29598646 02	RM	.38316114 06	VM	.10242261 01	RT	.38316114 06	VT	.10242261 01		
GED	-.21642034 02	ALT	.24574986 06	LOS	.10343937 03	RAS	.32254979 02	RAM	.27568641 03	LOM	.34687080 03		
DUT	.34000000 02	DT	.19200000 04	DR	.13217883 01	SHA	.24355940 06	DES	.13029982 02	DEM	-.20176876 02		

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.25212516 06		LAT	-.21508965 02		LONG	.22570095 01				
MIN	.19200000 04	HA	.26043702 02	DEC	-.21351094 02	ELE	.65766900 02	AZI	.27494383 03		
CKM	.34898527 03	CKC	.28411404 03	CKT	.34898527 03	PSS	.10552487 03	PSM	.14441448 02		
UT	.32000000 02	DHA	.42031963-02	DDE	.38277223-04	DEL	-.37824416-02	DAZ	-.24601223-02		
ET	.31999055 02	RGE	.24629787 06	DRG	.14906280 01	DDR	.19561085-04	SLS	.19992328 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10561517 03	POL	.23714861 02		
DT	.82156114 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14521984 06				
ESS1	-.12852328 03	ESS2	-.15212328 03	F1	.10620832 06	F2	.10954712 06	PRA	.29045669 03		
RF	.00000000 00	DOP	-.12527759-06								

1 DAYS 9 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.75299768 APRIL 25,1962 06 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.86845562 05	Y	-.22276462 06	Z	-.93828528 05	DX	.69244432 00	DY	-.10696231 01	DZ	-.38150694 00		
R	.25684629 06	DEC	-.21426663 02	RA	.29129850 03	V	.13300828 01	PTH	.78036076 02	AZ	.68556736 02		
R	.25684628 06	LAT	-.21426664 02	LON	.34744181 03	VE	.17227921 02	PTE	.43315624 01	AZE	.27033619 03		
XS	.12394474 09	YS	.78337023 08	ZS	.33968734 08	DXS	-.16401006 02	DYS	.22605521 02	DZS	.98012087 01		
XM	.39278558 05	YM	-.35730718 06	ZM	-.13219754 06	DXM	.10114970 01	DYM	.16308314 00	DZM	-.87984965-02		
XT	.39278558 05	YT	-.35730718 06	ZT	-.13219754 06	DXT	.10114970 01	DYT	.16308314 00	DZT	-.87984965-02		
RS	.15050868 09	VS	.29598416 02	RM	.38299793 06	VM	.10245973 01	RT	.38299793 06	VT	.10245973 01		
GED	-.21559323 02	ALT	.25047097 06	LOS	.88437504 02	RAS	.32294187 02	RAM	.27627330 03	LOM	.33241661 03		
DUT	.34000000 02	DT	.19200000 04	DR	.13011912 01	SHA	.24832679 06	DES	.13043623 02	DEM	-.20191876 02		

RANGER-4 ORBIT 042362 STATION PRINTS BK
JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.25684628 06		LAT	-.21426664 02		LONG	.34744181 03				
MIN	.19800000 04	HA	.41148605 02	DEC	-.21202239 02	ELE	.52132968 02	AZI	.26804308 03		
CKM	.34905634 03	CKC	.28427253 03	CKT	.34905634 03	PSS	.10560287 03	PSM	.13978067 02		
UT	.33000000 02	DHA	.41875993-02	DDE	.44110453-04	DEL	-.37815064-02	DAZ	-.15832240-02		
ET	.32999055 02	RGE	.25178341 06	DRG	.15545688 01	DDR	.15689025-04	SLS	.20011461 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10569514 03	POL	.23285338 02		
DT	.83985895 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14501505 06				
ESS1	-.12871461 03	ESS2	-.15231461 03	F1	.10640234 06	F2	.10995664 06	PRA	.29039286 03		
RF	.00000000 00	DOP	-.10047926-06								

1 DAYS 10 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.79466435 APRIL 25,1962 07 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.89324679 05	Y	-.22658283 06	Z	-.95188136 05	DX	.68486566 00	DY	-.10517330 01	DZ	-.37388411 00
R	.26149466 06	DEC	-.21347013 02	RA	.29151561 03	V	.13095696 01	PTH	.78086541 02	AZ	.68434073 02
R	.26149466 06	LAT	-.21347014 02	LON	.33261786 03	VE	.17555947 02	PTE	.41855885 01	AZE	.27032517 03
XS	.12388567 09	YS	.78418387 08	ZS	.34004011 08	DXS	-.16418384 02	DYS	.22594650 02	DZS	.97964875 01
XM	.42917950 05	YM	-.35670343 06	ZM	-.13222305 06	DXM	.10103652 01	DYM	.17232919 00	DZM	-.53768867-02
XT	.42917950 05	YT	-.35670343 06	ZT	-.13222305 06	DXT	.10103652 01	DYT	.17232919 00	DZT	-.53768867-02
RS	.15051038 09	VS	.29598187 02	RM	.38283446 06	VM	.10249702 01	RT	.38283446 06	VT	.10249702 01
GED	-.21479276 02	ALT	.25511932 06	LOS	.73435649 02	RAS	.32333398 02	RAM	.27686075 03	LOM	.31796300 03
DUT	.34000000 02	DT	.19200000 04	DR	.12813621 01	SHA	.25301937 06	DES	.13057260 02	DEM	-.20204943 02

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.26149466 06		LAT	-.21347014 02		LONG	.33261786 03				
MIN	.20400000 04	HA	.56189563 02	DEC	-.21035901 02	ELE	.38587476 02	AZI	.26280952 03		
CKM	.34913732 03	CKC	.28444019 03	CKT	.34913732 03	PSS	.10561917 03	PSM	.13528414 02		
UT	.34000000 02	DHA	.41679600-02	DDE	.47947451-04	DEL	-.37388485-02	DAZ	-.13760301-02		
ET	.33999055 02	RGE	.25747071 06	DRG	.15018449 01	DDR	.10366902-04	SLS	.20030862 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10571353 03	POL	.25028053 02		
DT	.85882973 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14486364 06				
ESS1	-.12890862 03	ESS2	-.15250862 03	F1	.10655477 06	F2	.11025943 06	PRA	.29039297 03		
RF	.00000000 00	DOP	-.66394097-07								

1 DAYS 11 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.83633102 APRIL 25,1962 08 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.91776808 05	Y	-.23033794 06	Z	-.96520853 05	DX	.67744620 00	DY	-.10345526 01	DZ	-.36657167 00
R	.26607297 06	DEC	-.21269847 02	RA	.29172452 03	V	.12898090 01	PTH	.78136020 02	AZ	.68310371 02
R	.26607296 06	LAT	-.21269847 02	LON	.31778570 03	VE	.17879188 02	PTE	.40484050 01	AZE	.27031484 03
XS	.12382652 09	YS	.78499715 08	ZS	.34039273 08	DXS	-.16435755 02	DYS	.22583766 02	DZS	.97917611 01
XM	.46553108 05	YM	-.35606641 06	ZM	-.13223624 06	DXM	.10091383 01	DYM	.18157161 00	DZM	-.19500905-02
XT	.46553108 05	YT	-.35606641 06	ZT	-.13223624 06	DXT	.10091383 01	DYT	.18157161 00	DZT	-.19500905-02
RS	.15051208 09	VS	.29597958 02	RM	.38267075 06	VM	.10253449 01	RT	.38267075 06	VT	.10253449 01
GED	-.21401723 02	ALT	.25969760 06	LOS	.58433796 02	RAS	.32372615 02	RAM	.27744876 03	LOM	.30350994 03
DUT	.34000000 02	DT	.19200000 04	DR	.12622567 01	SHA	.25763988 06	DES	.13070889 02	DEM	-.20216069 02

RANGER-4 ORBIT 042362 STATION PRINTS BK

JETGOLD-3		1	UNIFORM TIME	TAU .00000000 00							
R	.26607296 06		LAT	-.21269847 02		LONG	.31778570 03				
MIN	.21000000 04	HA	.28424219 03	DEC	-.22109251 02	ELE	-.17226992 01	AZI	.11605166 03		
CKM	.34759380 03	CKC	.28298284 03	CKT	.34759380 03	PSS	.10351852 03	PSM	.13743804 02		
UT	.35000000 02	DHA	.41483018-02	DDE	-.43862604-05	DEL	.30458134-02	DAZ	.23449352-02		
ET	.34999055 02	RGE	.26618828 06	DRG	.92379461 00	DDR	.90437861-06	SLS	.20059785 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.10361700 03	POL	.22633764 03		
DT	.88790839 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14703524 06				
ESS1	-.12919785 03	ESS2	-.15279785 03	F1	.10444835 06	F2	.10591668 06	PRA	.29289202 03		
RF	.00000000 00	DOP	-.57920292-08								

JOBJET		1	UNIFORM TIME	TAU .00000000 00							
R	.26607296 06		LAT	-.21269847 02		LONG	.31778570 03				
MIN	.21000000 04	HA	.71155158 02	DEC	-.20859609 02	ELE	.25246231 02	AZI	.25789315 03		
CKM	.34921848 03	CKC	.28460752 03	CKT	.34921848 03	PSS	.10556410 03	PSM	.13097089 02		
UT	.35000000 02	DHA	.41460236-02	DDE	.49630070-04	DEL	-.36683033-02	DAZ	-.13791377-02		
ET	.34999055 02	RGE	.26329125 06	DRG	.16279752 01	DDR	.40173430-05	SLS	.20050280 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10566061 03	POL	.27860398 02		
DT	.87824497 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14477995 06				
ESS1	-.12910280 03	ESS2	-.15270280 03	F1	.10663792 06	F2	.11042679 06	PRA	.29046844 03		
RF	.00000000 00	DOP	-.25728790-07								

1 DAYS 12 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.87799768 APRIL 25,1962 09 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.94202491 05	Y	-.23403241 06	Z	-.97827796 05	DX	.67017471 00	DY	-.10180442 01	DZ	-.35955102 00		
R	.27058373 06	DEC	-.21195019 02	RA	.29192572 03	V	.12707577 01	PTH	.78184987 02	AZ	.68184914 02		
R	.27058373 06	LAT	-.21195019 02	LON	.30294584 03	VE	.18197817 02	PTE	.39192675 01	AZE	.27030514 03		
XS	.12376732 09	YS	.78581000 08	ZS	.34074516 08	DXS	-.16453118 02	DYS	.22572873 02	DZS	.97870305 01		
XM	.50183666 05	YM	-.35539611 06	ZM	-.13223708 06	DXM	.10078164 01	DYM	.19080947 00	DZM	.14815653-02		
XT	.50183666 05	YT	-.35539611 06	ZT	-.13223708 06	DXT	.10078164 01	DYT	.19080947 00	DZT	.14815653-02		
RS	.15051377 09	VS	.29597730 02	RM	.38250679 06	VM	.10257214 01	RT	.38250679 06	VT	.10257214 01		
GED	-.21326520 02	ALT	.26420834 06	LOS	.43431950 02	RAS	.32411833 02	RAM	.27803731 03	LOM	.28905742 03		
DUT	.34000000 02	DT	.19200000 04	DR	.12438351 01	SHA	.26219088 06	DES	.13084512 02	DEM	-.20225248 02		

JETGOLD-3		1	UNIFORM TIME	TAU .00000000 00							
R	.27058373 06		LAT	-.21195019 02		LONG	.30294584 03				
MIN	.21600000 04	HA	.29921633 03	DEC	-.22120209 02	ELE	.88164447 01	AZI	.12509397 03		
CKM	.34748340 03	CKC	.28295831 03	CKT	.34748340 03	PSS	.10349998 03	PSM	.13367692 02		
UT	.36000000 02	DHA	.41701674-02	DDE	-.13995166-05	DEL	.27900528-02	DAZ	.27040505-02		
ET	.35999055 02	RGE	.26953381 06	DRG	.93865605 00	DDR	.72599148-05	SLS	.20070633 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.10359970 03	POL	.23258298 03		
DT	.89906791 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14698764 06				
ESS1	-.12930634 03	ESS2	-.15290633 03	F1	.10448992 06	F2	.10601187 06	PRA	.29295894 03		
RF	.00000000 00	DOP	-.46495613-07								

RANGER-4 ORBIT 042362 STATION PRINTS BK
JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.27058373 06		LAT	-.21195019 02		LONG	.30294584 03				
MIN	.21600000 04	HA	.86040271 02	DEC	-.20681129 02	ELE	.12212893 02	AZI	.25273436 03		
CKM	.34929057 03	CKC	.28476548 03	CKT	.34929057 03	PSS	.10543386 03	PSM	.12686300 02		
UT	.36000000 02	DHA	.41235338-02	DDE	.49179693-04	DEL	-.35664885-02	DAZ	-.15055743-02		
ET	.35999055 02	RGE	.26916327 06	DRG	.16301049 01	DDR	-.28857051-05	SLS	.20069438 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10553258 03	POL	.31594965 02		
DT	.89783189 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14477313 06				
ESS1	-.12929438 03	ESS2	-.15289438 03	F1	.10663792 06	F2	.11044043 06	PRA	.29062439 03		
RF	.00000000 00	DOP	.18481296-07								

1 DAYS 13 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.91966435 APRIL 25,1962 10 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.96602245 05	Y	-.23766861 06	Z	-.99109957 05	DX	.66304030 00	DY	-.10021742 01	DZ	-.35280554 00				
R	.27502936 06	DEC	-.21122389 02	RA	.29211967 03	V	.12523766 01	PTH	.78233921 02	AZ	.68056943 02				
R	.27502935 06	LAT	-.21122390 02	LON	.28809871 03	VE	.18511999 02	PTE	.37975177 01	AZE	.27029601 03				
XS	.12370806 09	YS	.78662246 08	ZS	.34109742 08	DXS	-.16470473 02	DYS	.22561968 02	DZS	.97822952 01				
XM	.53809295 05	YM	-.35469259 06	ZM	-.13222557 06	DXM	.10063992 01	DYM	.20004194 00	DZM	.49177853-02				
XT	.53809295 05	YT	-.35469259 06	ZT	-.13222557 06	DXT	.10063992 01	DYT	.20004194 00	DZT	.49177853-02				
RS	.15051547 09	VS	.29597502 02	RM	.38234260 06	VM	.10260995 01	RT	.38234260 06	VT	.10260995 01				
GED	-.21253527 02	ALT	.26865395 06	LOS	.28430101 02	RAS	.32451055 02	RAM	.27862639 03	LOM	.27460543 03				
DUT	.34000000 02	DT	.19200000 04	DR	.12260621 01	SHA	.26667478 06	DES	.13098129 02	DEM	-.20232474 02				

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R	.27502935 06		LAT	-.21122390 02		LONG	.28809871 03				
MIN	.22200000 04	HA	.31426302 03	DEC	-.22117328 02	ELE	.18199254 02	AZI	.13570270 03		
CKM	.34739774 03	CKC	.28295845 03	CKT	.34739774 03	PSS	.10354569 03	PSM	.12961929 02		
UT	.37000000 02	DHA	.41883972-02	DDE	.32483429-05	DEL	.23952408-02	DAZ	.32134065-02		
ET	.36999055 02	RGE	.27297260 06	DRG	.97513511 00	DDR	.12841018-04	SLS	.20081645 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.10364666 03	POL	.24077025 03		
DT	.91053847 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14687081 06				
ESS1	-.12941645 03	ESS2	-.15301645 03	F1	.10460079 06	F2	.10624551 06	PRA	.29295332 03		
RF	.00000000 00	DOP	-.82239400-07								

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.27502935 06		LAT	-.21122390 02		LONG	.28809871 03				
MIN	.22200000 04	HA	.10084588 03	DEC	-.20507876 02	ELE	-.38063619 00	AZI	.24691341 03		
CKM	.34934546 03	CKC	.28490618 03	CKT	.34934546 03	PSS	.10523026 03	PSM	.12296048 02		
UT	.37000000 02	DHA	.41021018-02	DDE	.46764288-04	DEL	-.34210854-02	DAZ	-.17494108-02		
ET	.36999055 02	RGE	.27499780 06	DRG	.16071177 01	DDR	-.98565307-05	SLS	.20088065 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10533122 03	POL	.36348297 02		
DT	.91729381 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14484675 06				
ESS1	-.12948065 03	ESS2	-.15308065 03	F1	.10656863 06	F2	.11029321 06	PRA	.29085985 03		
RF	.00000000 00	DOP	.63125457-07								

RANGER-4 ORBIT 042362 STATION PRINTS BK

1 DAYS 14 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437779.96133102 APRIL 25,1962 11 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.98976556 05	Y	-.24124879 06	Z	-.10036830 06	DX	.65603237 00	DY	-.98691368 00	DZ	-.34632057 00
R	.27941212 06	DEC	-.21051835 02	RA	.29230675 03	V	.12346315 01	PTH	.78283361 02	AZ	.67925622 02
R	.27941212 06	LAT	-.21051835 02	LON	.27324473 03	VE	.18821896 02	PTE	.36825699 01	AZE	.27028742 03
XS	.12364873 09	YS	.78743457 08	ZS	.34144952 08	DXS	-.16487820 02	DYS	.22551052 02	DZS	.97775547 01
XM	.57429661 05	YM	-.35395583 06	ZM	-.13220167 06	DXM	.10048866 01	DYM	.20926817 00	DZM	.83582740-02
XT	.57429661 05	YT	-.35395583 06	ZT	-.13220167 06	DXT	.10048866 01	DYT	.20926817 00	DZT	.83582740-02
RS	.15051717 09	VS	.29597276 02	RM	.38217819 06	VM	.10264795 01	RT	.38217819 06	VT	.10264795 01
GED	-.21182615 02	ALT	.27303670 06	LOS	.13428251 02	RAS	.32490283 02	RAM	.27921598 03	LOM	.26015396 03
DUT	.34000000 02	DT	.19200000 04	DR	.12089066 01	SHA	.27109388 06	DES	.13111741 02	DEM	-.20237740 02

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R .27941212 06 LAT -.21051835 02 LONG .27324473 03

MIN	.22800000 04	HA	.32936710 03	DEC	-.22095293 02	ELE	.25834166 02	AZI	.14836286 03
CKM	.34733973 03	CKC	.28298648 03	CKT	.34733973 03	PSS	.10364094 03	PSM	.12530926 02
UT	.38000000 02	DHA	.42018956-02	DDE	.91653981-05	DEL	.18110030-02	DAZ	.38291643-02
ET	.37999055 02	RGE	.27657653 06	DRG	.10296855 01	DDR	.17236615-04	SLS	.20093038 03
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.10374320 03	PDL	.25123844 03
DT	.92255989 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14669610 06		
ESS1	-.12953038 03	ESS2	-.15313037 03	F1	.10476708 06	F2	.10659489 06	PRA	.29289031 03
RF	.00000000 00	DOP	-.11039069-06						

1 DAYS 15 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.00299768 APRIL 25,1962 12 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.10132584 06	Y	-.24477509 06	Z	-.10160376 06	DX	.64914029 00	DY	-.97223783 00	DZ	-.34008320 00
R	.28373420 06	DEC	-.20983240 02	RA	.29248735 03	V	.12174917 01	PTH	.78333855 02	AZ	.67790006 02
R	.28373419 06	LAT	-.20983241 02	LON	.25838425 03	VE	.19127660 02	PTE	.35739041 01	AZE	.27027930 03
XS	.12358934 09	YS	.78824623 08	ZS	.34180145 08	DXS	-.16505159 02	DYS	.22540125 02	DZS	.97728100 01
XM	.61044394 05	YM	-.35318586 06	ZM	-.13216538 06	DXM	.10032786 01	DYM	.21848721 00	DZM	.11802693-01
XT	.61044394 05	YT	-.35318586 06	ZT	-.13216538 06	DXT	.10032786 01	DYT	.21848721 00	DZT	.11802693-01
RS	.15051886 09	VS	.29597049 02	RM	.38201355 06	VM	.10268612 01	RT	.38201355 06	VT	.10268612 01
GED	-.21113675 02	ALT	.27735876 06	LOS	.35842642 03	RAS	.32529512 02	RAM	.27980608 03	LOM	.24570299 03
DUT	.34000000 02	DT	.19200000 04	DR	.11923414 01	SHA	.27545037 06	DES	.13125346 02	DEM	-.20241043 02

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R .28373419 06 LAT -.20983241 02 LONG .25838425 03

MIN	.23400000 04	HA	.34451007 03	DEC	-.22050408 02	ELE	.30974395 02	AZI	.16321961 03
CKM	.34731014 03	CKC	.28304345 03	CKT	.34731014 03	PSS	.10376823 03	PSM	.12080137 02
UT	.39000000 02	DHA	.42099041-02	DDE	.15853358-04	DEL	.10095208-02	DAZ	.43960301-02
ET	.38999055 02	RGE	.28040220 06	DRG	.10974140 01	DDR	.20115709-04	SLS	.20104970 03
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.10387185 03	PDL	.26403787 03
DT	.93532094 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14647919 06		
ESS1	-.12964970 03	ESS2	-.15324970 03	F1	.10497495 06	F2	.10702868 06	PRA	.29278841 03
RF	.00000000 00	DOP	-.12882964-06						

1 DAYS 16 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.04466435 APRIL 25,1962 13 04 19.000

RANGER-4 ORBIT 042362 STATION PRINTS BK

GEOCENTRIC EQUATORIAL COORDINATES

X	.10365051 06	Y	-.24824957 06	Z	-.10281718 06	DX	.64235356 00	DY	-.95812584 00	DZ	-.33408216 00
R	.28799766 06	DEC	-.20916499 02	RA	.29266178 03	V	.12009305 01	PTH	.78386018 02	AZ	.67649036 02
R	.28799766 06	LAT	-.20916499 02	LON	.24351761 03	VE	.19429439 02	PTE	.34710585 01	AZE	.27027161 03
XS	.12352988 09	YS	.78905754 08	ZS	.34215321 08	DXS	-.16522491 02	DYS	.22529187 02	DZS	.97680601 01
XM	.64653181 05	YM	-.35238272 06	ZM	-.13211658 06	DXM	.10015750 01	DYM	.22769826 00	DZM	.15250764-01
XT	.64653181 05	YT	-.35238272 06	ZT	-.13211658 06	DXT	.10015750 01	DYT	.22769826 00	DZT	.15250764-01
RS	.15052056 09	VS	.29596823 02	RM	.38184870 06	VM	.10272446 01	RT	.38184870 06	VT	.10272446 01
GED	-.21046596 02	ALT	.28162220 06	LOS	.34342458 03	RAS	.32568746 02	RAM	.28039667 03	LOM	.23125252 03
DUT	.34000000 02	DT	.19200000 04	DR	.11763428 01	SHA	.27974632 06	DES	.13138944 02	DEM	-.20242375 02

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R	.28799766 06			LAT	-.20916499 02			LONG	.24351761 03		
MIN	.24000000 04	HA	.35967140 03	DEC	-.21980896 02	ELE	.32901713 02	AZI	.17963691 03		
CKM	.34730745 03	CKC	.28312818 03	CKT	.34730745 03	PSS	.10390854 03	PSM	.11615656 02		
UT	.40000000 02	DHA	.42120846-02	DDE	.22751944-04	DEL	.44575693-04	DAZ	.46497532-02		
ET	.39999055 02	RGE	.28448668 06	DRG	.11724338 01	DDR	.21262288-04	SLS	.20117531 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.10401361 03	POL	.27845421 03		
DT	.94894530 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14623892 06				
ESS1	-.12977531 03	ESS2	-.15337531 03	F1	.10521054 06	F2	.10750916 06	PRA	.29266815 03		
RF	.00000000 00	DOP	-.13617283-06								

OOMJET 1 UNIFORM TIME TAU .00000000 00

R	.28799766 06			LAT	-.20916499 02			LONG	.24351761 03		
MIN	.24000000 04	HA	.25226172 03	DEC	-.20189331 02	ELE	-.37687378 01	AZI	.11637910 03		
CKM	.34895739 03	CKC	.28477812 03	CKT	.34895739 03	PSS	.10260849 03	PSM	.11756226 02		
UT	.40000000 02	DHA	.41097302-02	DDE	-.10377389-04	DEL	.31549356-02	DAZ	-.22239564-02		
ET	.39999055 02	RGE	.28834631 06	DRG	.82598225 00	DDR	-.12489954-04	SLS	.20129236 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10271555 03	POL	.15427428 03		
DT	.96181963 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14734851 06				
ESS1	-.12989236 03	ESS2	-.15349236 03	F1	.10412961 06	F2	.10529022 06	PRA	.29376746 03		
RF	.00000000 00	DOP	.79991034-07								

1 DAYS 17 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.08633102 APRIL 25,1962 14 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.10595092 06	Y	-.25167425 06	Z	-.10400942 06	DX	.63566133 00	DY	-.94456084 00	DZ	-.32830774 00
R	.29220452 06	DEC	-.20851514 02	RA	.29283033 03	V	.11849247 01	PTH	.78440518 02	AZ	.67501482 02
R	.29220452 06	LAT	-.20851514 02	LON	.22864510 03	VE	.19727378 02	PTE	.33736157 01	AZE	.27026435 03
XS	.12347037 09	YS	.78986843 08	ZS	.34250478 08	DXS	-.16539816 02	DYS	.22518237 02	DZS	.97633059 01
XM	.68255651 05	YM	-.35154644 06	ZM	-.13205557 06	DXM	.99977574 00	DYM	.23690038 00	DZM	.18702145-01
XT	.68255651 05	YT	-.35154644 06	ZT	-.13205557 06	DXT	.99977574 00	DYT	.23690038 00	DZT	.18702145-01
RS	.15052225 09	VS	.29596598 02	RM	.38168364 06	VM	.10276298 01	RT	.38168364 06	VT	.10276298 01
GED	-.20981281 02	ALT	.28582905 06	LOS	.32842276 03	RAS	.32607983 02	RAM	.28098774 03	LOM	.21680252 03
DUT	.34000000 02	DT	.19200000 04	DR	.11608911 01	SHA	.28398372 06	DES	.13152537 02	DEM	-.20241735 02

CASE 1 SPACE TRAJECTORIES 29

RANGER-4 ORBIT 042362 STATION PRINTS BK
JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R	.29220452 06		LAT	-.20851514 02		LONG	.22864510 03				
MIN	.24600000 04	HA	.14830212 02	DEC	-.21887022 02	ELE	.31285493 02	AZI	.19613600 03		
CKM	.34732797 03	CKC	.28323741 03	CKT	.34732797 03	PSS	.10404279 03	PSM	.11143632 02		
UT	.41000000 02	DHA	.42085563-02	DDE	.29294983-04	DEL	-.92834000-03	DAZ	.44388212-02		
ET	.40999055 02	RGE	.28884476 06	DRG	.12483242 01	DDR	.20598543-04	SLS	.20130736 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.10414940 03	POL	.29293939 03		
DT	.96348229 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14599587 06				
ESS1	-.12990736 03	ESS2	-.15350736 03	F1	.10544613 06	F2	.10799522 06	PRA	.29255041 03		
RF	.00000000 00	DOP	-.13192192-06								

DOMJET 1 UNIFORM TIME TAU .00000000 00

R	.29220452 06		LAT	-.20851514 02		LONG	.22864510 03				
MIN	.24600000 04	HA	.26709772 03	DEC	-.20228927 02	ELE	.79632466 01	AZI	.10887272 03		
CKM	.34879252 03	CKC	.28470196 03	CKT	.34879252 03	PSS	.10246633 03	PSM	.11395742 02		
UT	.41000000 02	DHA	.41325418-02	DDE	-.11325651-04	DEL	.33501672-02	DAZ	-.19716009-02		
ET	.40999055 02	RGE	.29125352 06	DRG	.79325919 00	DDR	-.56182545-05	SLS	.20137949 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10257453 03	POL	.15920474 03		
DT	.97151703 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14745331 06				
ESS1	-.12997949 03	ESS2	-.15357949 03	F1	.10404646 06	F2	.10508063 06	PRA	.29397253 03		
RF	.00000000 00	DOP	.35981715-07								

1 DAYS 18 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.12799768 APRIL 25,1962 15 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.10822739 06	Y	-.25505104 06	Z	-.10518126 06	DX	.62905245 00	DY	-.93152998 00	DZ	-.32275175 00
R	.29635670 06	DEC	-.20788196 02	RA	.29299327 03	V	.11694545 01	PTH	.78498139 02	AZ	.67345911 02
R	.29635670 06	LAT	-.20788196 02	LON	.21376697 03	VE	.20021618 02	PTE	.32812092 01	AZE	.27025745 03
XS	.12341079 09	YS	.79067892 08	ZS	.34285619 08	DXS	-.16557132 02	DYS	.22507277 02	DZS	.97585469 01
XM	.71851473 05	YM	-.35067705 06	ZM	-.13198202 06	DXM	.99788079 00	DYM	.24609271 00	DZM	.22156534-01
XT	.71851473 05	YT	-.35067705 06	ZT	-.13198202 06	DXT	.99788079 00	DYT	.24609271 00	DZT	.22156534-01
RS	.15052395 09	VS	.29596374 02	RM	.38151839 06	VM	.10280168 01	RT	.38151839 06	VT	.10280168 01
GED	-.20917642 02	ALT	.28998122 06	LOS	.31342093 03	RAS	.32647223 02	RAM	.28157927 03	LOM	.20235298 03
DUT	.34000000 02	DT	.19200000 04	DR	.11459698 01	SHA	.28816450 06	DES	.13166122 02	DEM	-.20239115 02

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R	.29635670 06		LAT	-.20788196 02		LONG	.21376697 03				
MIN	.25200000 04	HA	.29966814 02	DEC	-.21771019 02	ELE	.26406152 02	AZI	.21119197 03		
CKM	.34736616 03	CKC	.28336604 03	CKT	.34736616 03	PSS	.10415327 03	PSM	.10669838 02		
UT	.42000000 02	DHA	.41998779-02	DDE	.34968193-04	DEL	-.17481166-02	DAZ	.38929772-02		
ET	.41999055 02	RGE	.29346791 06	DRG	.13186454 01	DDR	.18191443-04	SLS	.20144528 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.10426153 03	POL	.30589392 03		
DT	.97890344 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14577065 06				
ESS1	-.13004528 03	ESS2	-.15364528 03	F1	.10568172 06	F2	.10844561 06	PRA	.29245487 03		
RF	.00000000 00	DOP	-.11650582-06								

RANGER-4 ORBIT 042362 STATION PRINTS BK
DOMJET 1 UNIFORM TIME TAU .00000000 00

R	.29635670 06		LAT	-.20788196 02		LONG	.21376697 03				
MIN	.25200000 04	HA	.28201557 03	DEC	-.20268738 02	ELE	.20275389 02	AZI	.10200402 03		
CKM	.34863874 03	CKC	.28463861 03	CKT	.34863874 03	PSS	.10240007 03	PSM	.11010062 02		
UT	.42000000 02	DHA	.41549807-02	DDE	-.10496923-04	DEL	.34806827-02	DAZ	-.18700057-02		
ET	.41999055 02	RGE	.29408812 06	DRG	.78576958 00	DDR	.14513223-05	SLS	.20146362 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10250935 03	POL	.16273680 03		
DT	.98097224 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14747730 06				
ESS1	-.13006362 03	ESS2	-.15366362 03	F1	.10401875 06	F2	.10503267 06	PRA	.29409574 03		
RF	.00000000 00	DOP	-.92948916-08								

1 DAYS 19 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.16966435 APRIL 25,1962 16 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.11048021 06	Y	-.25838188 06	Z	-.10633348 06	DX	.62251520 00	DY	-.91902462 00	DZ	-.31740752 00				
R	.30045612 06	DEC	-.20726462 02	RA	.29315082 03	V	.11545038 01	PTH	.78559719 02	AZ	.67180625 02				
R	.30045611 06	LAT	-.20726462 02	LON	.19888346 03	VE	.20312299 02	PTE	.31935104 01	AZE	.27025089 03				
XS	.12335115 09	YS	.79148906 08	ZS	.34320744 08	DXS	-.16574441 02	DYS	.22496305 02	DZS	.97537828 01				
XM	.75440312 05	YM	-.34977458 06	ZM	-.13189603 06	DXM	.99589001 00	DYM	.25527437 00	DZM	.25613624-01				
XT	.75440312 05	YT	-.34977458 06	ZT	-.13189603 06	DXT	.99589001 00	DYT	.25527437 00	DZT	.25613624-01				
RS	.15052564 09	VS	.29596150 02	RM	.38135293 06	VM	.10284055 01	RT	.38135293 06	VT	.10284055 01				
GED	-.20855594 02	ALT	.29408062 06	LOS	.29841910 03	RAS	.32686469 02	RAM	.28217126 03	LOM	.18790390 03				
DUT	.34000000 02	DT	.19200000 04	DR	.11315661 01	SHA	.29229052 06	DES	.13179703 02	DEM	-.20234511 02				

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R	.30045611 06		LAT	-.20726462 02		LONG	.19888346 03				
MIN	.25800000 04	HA	.45064253 02	DEC	-.21636796 02	ELE	.18961965 02	AZI	.22408919 03		
CKM	.34741503 03	CKC	.28350762 03	CKT	.34741503 03	PSS	.10422495 03	PSM	.10199157 02		
UT	.43000000 02	DHA	.41869782-02	DDE	.39357899-04	DEL	-.23518354-02	DAZ	.32792049-02		
ET	.42999055 02	RGE	.29832515 06	DRG	.13774494 01	DDR	.14243933-04	SLS	.20158787 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.10433497 03	POL	.31652293 03		
DT	.99510545 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14558231 06				
ESS1	-.13018787 03	ESS2	-.15378787 03	F1	.10584801 06	F2	.10882223 06	PRA	.29239850 03		
RF	.00000000 00	DOP	-.91224267-07								

DOMJET 1 UNIFORM TIME TAU .00000000 00

R	.30045611 06		LAT	-.20726462 02		LONG	.19888346 03				
MIN	.25800000 04	HA	.29701146 03	DEC	-.20302441 02	ELE	.32963270 02	AZI	.95199759 02		
CKM	.34850135 03	CKC	.28459395 03	CKT	.34850135 03	PSS	.10240500 03	PSM	.10599931 02		
UT	.43000000 02	DHA	.41756662-02	DDE	-.79529516-05	DEL	.35599649-02	DAZ	-.19452363-02		
ET	.42999055 02	RGE	.29694124 06	DRG	.80337396 00	DDR	.82418739-05	SLS	.20154748 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10251533 03	POL	.16489954 03		
DT	.99048921 00	RF1	.00000000 00	RF2	.00000000 00	BF1	.14742091 06				
ESS1	-.13014748 03	ESS2	-.15374748 03	F1	.10406032 06	F2	.10514542 06	PRA	.29414091 03		
RF	.00000000 00	DOP	-.52784503-07								

CASE 1 SPACE TRAJECTORIES 31

RANGER-4 ORBIT 042362 STATION PRINTS BK

1 DAYS 20 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.21133102 APRIL 25,1962 17 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.11270960 06	Y	-.26166864 06	Z	-.10746684 06	DX	.61603691 00	DY	-.90704071 00	DZ	-.31227000 00
R	.30450460 06	DEC	-.20666235 02	RA	.29330319 03	V	.11400600 01	PTH	.78626288 02	AZ	.67003585 02
R	.30450459 06	LAT	-.20666235 02	LON	.18399476 03	VE	.20599562 02	PTE	.31102256 01	AZE	.27024466 03
XS	.12329145 09	YS	.79229875 08	ZS	.34355851 08	DXS	-.16591741 02	DYS	.22485323 02	DZS	.97490145 01
XM	.79021800 05	YM	-.34883908 06	ZM	-.13179760 06	DXM	.99380340 00	DYM	.26444444 00	DZM	.29073074-01
XT	.79021800 05	YT	-.34883908 06	ZT	-.13179760 06	DXT	.99380340 00	DYT	.26444444 00	DZT	.29073074-01
RS	.15052733 09	VS	.29595927 02	RM	.38118729 06	VM	.10287960 01	RT	.38118729 06	VT	.10287960 01
GED	-.20795060 02	ALT	.29812908 06	LOS	.28341729 03	RAS	.32725716 02	RAM	.28276368 03	LOM	.17345526 03
DUT	.34000000 02	DT	.19200000 04	DR	.11176713 01	SHA	.29636358 06	DES	.13193275 02	DEM	-.20227919 02

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R .30450459 06 LAT -.20666235 02 LONG .18399476 03

MIN	.26400000 04	HA	.60109411 02	DEC	-.21489525 02	ELE	.97048295 01	AZI	.23492718 03
CKM	.34746668 03	CKC	.28365492 03	CKT	.34746668 03	PSS	.10424647 03	PSM	.97352982 01
UT	.44000000 02	DHA	.41710505-02	DDE	.42182795-04	DEL	-.27630386-02	DAZ	.27654367-02
ET	.43999055 02	RGE	.30336566 06	DRG	.14197278 01	DDR	.90708459-05	SLS	.20173340 03
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.10435833 03	POL	.32481608 03
DT	.10119188 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14544691 06		
ESS1	-.13033340 03	ESS2	-.15393340 03	F1	.10598659 06	F2	.10909302 06	PRA	.29239440 03
RF	.00000000 00	DOP	-.58093594-07						

OOMJET 1 UNIFORM TIME TAU .00000000 00

R .30450459 06 LAT -.20666235 02 LONG .18399476 03

MIN	.26400000 04	HA	.31207668 03	DEC	-.20324162 02	ELE	.45843231 02	AZI	.87650120 02
CKM	.34838429 03	CKC	.28457254 03	CKT	.34838429 03	PSS	.10247198 03	PSM	.10167323 02
UT	.44000000 02	DHA	.41932891-02	DDE	-.38819342-05	DEL	.35849873-02	DAZ	-.23192351-02
ET	.43999055 02	RGE	.29990035 06	DRG	.84419730 00	DDR	.14272320-04	SLS	.20163361 03
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10258339 03	POL	.16531693 03
DT	.10003597 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14729017 06		
ESS1	-.13023361 03	ESS2	-.15383361 03	F1	.10419890 06	F2	.10540688 06	PRA	.29411676 03
RF	.00000000 00	DOP	-.91406068-07						

1 DAYS 21 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.25299768 APRIL 25,1962 18 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.11491575 06	Y	-.26491319 06	Z	-.10858206 06	DX	.60960376 00	DY	-.89557925 00	DZ	-.30733579 00
R	.30850396 06	DEC	-.20607444 02	RA	.29345055 03	V	.11261146 01	PTH	.78699012 02	AZ	.66812305 02
R	.30850395 06	LAT	-.20607444 02	LON	.16910105 03	VE	.20883547 02	PTE	.30311004 01	AZE	.27023872 03
XS	.12323168 09	YS	.79310808 08	ZS	.34390940 08	DXS	-.16609034 02	DYS	.22474330 02	DZS	.97442413 01
XM	.82595604 05	YM	-.34787059 06	ZM	-.13168670 06	DXM	.99162086 00	DYM	.27360203 00	DZM	.32534572-01
XT	.82595604 05	YT	-.34787059 06	ZT	-.13168670 06	DXT	.99162086 00	DYT	.27360203 00	DZT	.32534572-01
RS	.15052903 09	VS	.29595704 02	RM	.38102148 06	VM	.10291883 01	RT	.38102148 06	VT	.10291883 01
GED	-.20735969 02	ALT	.30212842 06	LOS	.26841547 03	RAS	.32764967 02	RAM	.28335653 03	LOM	.15900704 03
DUT	.34000000 02	DT	.19200000 04	DR	.11042807 01	SHA	.30038545 06	DES	.13206843 02	DEM	-.20219335 02

RANGER-4 ORBIT 042362 STATION PRINTS BK
JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R	.30850395 06		LAT	-.20607444 02		LONG	.16910105 03				
MIN	.27000000 04	HA	.75093776 02	DEC	-.21335127 02	ELE	-.76145424 00	AZI	.24418466 03		
CKM	.34751294 03	CKC	.28380053 03	CKT	.34751294 03	PSS	.10421075 03	PSM	.92806254 01		
UT	.45000000 02	DHA	.41534291-02	DDE	.43305667-04	DEL	-.30318588-02	DAZ	.24037983-02		
ET	.44999055 02	RGE	.30852283 06	DRG	.14417602 01	DDR	.30664489-05	SLS	.20187981 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.10432453 03	POL	.33109761 03		
DT	.10291212 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14537635 06				
ESS1	-.13047982 03	ESS2	-.15407981 03	F1	.10605588 06	F2	.10923413 06	PRA	.29245111 03		
RF	.00000000 00	DOP	-.19638857-07								

DOMJET 1 UNIFORM TIME TAU .00000000 00

R	.30850395 06		LAT	-.20607444 02		LONG	.16910105 03				
MIN	.27000000 04	HA	.32719811 03	DEC	-.20328929 02	ELE	.58664919 02	AZI	.77642398 02		
CKM	.34828967 03	CKC	.28457726 03	CKT	.34828967 03	PSS	.10258803 03	PSM	.97152989 01		
UT	.45000000 02	DHA	.42067266-02	DDE	.14034644-05	DEL	.35138999-02	DAZ	-.34469132-02		
ET	.44999055 02	RGE	.30304312 06	DRG	.90468682 00	DDR	.19098907-04	SLS	.20172416 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10270055 03	POL	.16260024 03		
DT	.10108429 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14709644 06				
ESS1	-.13032416 03	ESS2	-.15392416 03	F1	.10439291 06	F2	.10579430 06	PRA	.29403640 03		
RF	.00000000 00	DOP	-.12231761-06								

1 DAYS 22 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.29466435 APRIL 25,1962 19 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.11709881 06	Y	-.26811743 06	Z	-.10967989 06	DX	.60320026 00	DY	-.88464703 00	DZ	-.30260331 00		
R	.31245602 06	DEC	-.20550024 02	RA	.29359303 03	V	.11126633 01	PTH	.78779274 02	AZ	.66603716 02		
R	.31245602 06	LAT	-.20550024 02	LON	.15420247 03	VE	.21164397 02	PTE	.29559086 01	AZE	.27023306 03		
XS	.12317186 09	YS	.79391703 08	ZS	.34426013 08	DXS	-.16626319 02	DYS	.22463324 02	DZS	.97394630 01		
XM	.86161387 05	YM	-.34686915 06	ZM	-.13156334 06	DXM	.98934238 00	DYM	.28274627 00	DZM	.35997811-01		
XT	.86161387 05	YT	-.34686915 06	ZT	-.13156334 06	DXT	.98934238 00	DYT	.28274627 00	DZT	.35997811-01		
RS	.15053072 09	VS	.29595482 02	RM	.38085548 06	VM	.10295822 01	RT	.38085548 06	VT	.10295822 01		
GED	-.20678255 02	ALT	.30608047 06	LOS	.25341366 03	RAS	.32804224 02	RAM	.28394978 03	LOM	.14455923 03		
DUT	.34000000 02	DT	.19200000 04	DR	.10913946 01	SHA	.30435786 06	DES	.13220405 02	DEM	-.20208756 02		

DOMJET 1 UNIFORM TIME TAU .00000000 00

R	.31245602 06		LAT	-.20550024 02		LONG	.15420247 03				
MIN	.27600000 04	HA	.34235908 03	DEC	-.20313097 02	ELE	.70778007 02	AZI	.59682386 02		
CKM	.34821755 03	CKC	.28460911 03	CKT	.34821755 03	PSS	.10273713 03	PSM	.92477499 01		
UT	.46000000 02	DHA	.42151541-02	DDE	.74851064-05	DEL	.31074554-02	DAZ	-.74214898-02		
ET	.45999055 02	RGE	.30643171 06	DRG	.97982373 00	DDR	.22357968-04	SLS	.20182074 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10285084 03	POL	.15148602 03		
DT	.10221460 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14685580 06				
ESS1	-.13042074 03	ESS2	-.15402074 03	F1	.10461464 06	F2	.10627554 06	PRA	.29391649 03		
RF	.00000000 00	DOP	-.14319003-06								

RANGER-4 ORBIT 042362 STATION PRINTS BK

1 DAYS 23 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.33633102 APRIL 25,1962 20 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.11925883 06	Y	-.27128329 06	Z	-.11076105 06	DX	.59680860 00	DY	-.87425785 00	DZ	-.29807311 00
R	.31636261 06	DEC	-.20493913 02	RA	.29373077 03	V	.10997067 01	PTH	.78868758 02	AZ	.66373960 02
R	.31636260 06	LAT	-.20493914 02	LON	.13929913 03	VE	.21442265 02	PTE	.28844571 01	AZE	.27022764 03
XS	.12311197 09	YS	.79472552 08	ZS	.34461068 08	DXS	-.16643596 02	DYS	.22452309 02	DZS	.97346804 01
XM	-.89718783 05	YM	-.34583483 06	ZM	-.13142752 06	DXM	.98696793 00	DYM	.29187620 00	DZM	.39462435-01
XT	.89718783 05	YT	-.34583483 06	ZT	-.13142752 06	DXT	.98696793 00	DYT	.29187620 00	DZT	.39462435-01
RS	.15053241 09	VS	.29595261 02	RM	.38068934 06	VM	.10299780 01	RT	.38068934 06	VT	.10299780 01
GED	-.20621857 02	ALT	.30998705 06	LOS	.23841185 03	RAS	.32843481 02	RAM	.28454344 03	LOM	.13011181 03
DUT	.34000000 02	DT	.19200000 04	DR	.10790185 01	SHA	.30828256 06	DES	.13233960 02	DEM	-.20196177 02

DOMJET 1 UNIFORM TIME TAU .00000000 00

R	.31636260 06	LAT	-.20493914 02	LONG	.13929913 03						
MIN	.28200000 04	HA	.35754066 03	DEC	-.20274665 02	ELE	.78843533 02	AZI	.12007313 02		
CKM	.34816579 03	CKC	.28466709 03	CKT	.34816579 03	PSS	.10290144 03	PSM	.87690988 01		
UT	.47000000 02	DHA	.42181331-02	DDE	.13875267-04	DEL	.73688142-03	DAZ	-.20091525-01		
ET	.46999055 02	RGE	.31010810 06	DRG	.10634821 01	DDR	.23803749-04	SLS	.20192433 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10301644 03	POL	.11045228 03		
DT	.10344091 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14658786 06				
ESS1	-.13052433 03	ESS2	-.15412433 03	F1	.10489181 06	F2	.10681135 06	PRA	.29377598 03		
RF	.00000000 00	DOP	-.15244944-06								

2 DAYS 0 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.37799768 APRIL 25,1962 21 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.12139584 06	Y	-.27441275 06	Z	-.11182626 06	DX	.59040802 00	DY	-.86443377 00	DZ	-.29374817 00
R	.32022558 06	DEC	-.20439056 02	RA	.29386384 03	V	.10872513 01	PTH	.78969501 02	AZ	.66118119 02
R	.32022557 06	LAT	-.20439057 02	LON	.12439114 03	VE	.21717305 02	PTE	.28165856 01	AZE	.27022246 03
XS	.12305201 09	YS	.79553368 08	ZS	.34496107 08	DXS	-.16660867 02	DYS	.22441281 02	DZS	.97298928 01
XM	.93267471 05	YM	-.34476766 06	ZM	-.13127921 06	DXM	.98449744 00	DYM	.30099098 00	DZM	.42928152-01
XT	.93267471 05	YT	-.34476766 06	ZT	-.13127921 06	DXT	.98449744 00	DYT	.30099098 00	DZT	.42928152-01
RS	.15053411 09	VS	.29595040 02	RM	.38052304 06	VM	.10303755 01	RT	.38052304 06	VT	.10303755 01
GED	-.20566719 02	ALT	.31385000 06	LOS	.22341005 03	RAS	.32882745 02	RAM	.28513748 03	LOM	.11566478 03
DUT	.34000000 02	DT	.19200000 04	DR	.10671648 01	SHA	.31216128 06	DES	.13247509 02	DEM	-.20181596 02

DOMJET 1 UNIFORM TIME TAU .00000000 00

R	.32022557 06	LAT	-.20439057 02	LONG	.12439114 03						
MIN	.28800000 04	HA	.12723082 02	DEC	-.20213437 02	ELE	.74139734 02	AZI	.31086593 03		
CKM	.34813002 03	CKC	.28474827 03	CKT	.34813002 03	PSS	.10306271 03	PSM	.82838447 01		
UT	.48000000 02	DHA	.42156590-02	DDE	.20064970-04	DEL	-.27411964-02	DAZ	-.10437284-01		
ET	.47999055 02	RGE	.31409090 06	DRG	.11489070 01	DDR	.23335064-04	SLS	.20203517 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10317911 03	POL	.55970361 02		
DT	.10476943 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14631427 06				
ESS1	-.13063517 03	ESS2	-.15423517 03	F1	.10514125 06	F2	.10735848 06	PRA	.29363463 03		
RF	.00000000 00	DOP	-.14944777-06								

RANGER-4 ORBIT 042362 STATION PRINTS BK
JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.32022557 06		LAT	-.20439057 02		LONG	.12439114 03				
MIN	.28800000 04	HA	.26220708 03	DEC	-.19929199 02	ELE	.19010602 01	AZI	.11125991 03		
CKM	.34820265 03	CKC	.28482090 03	CKT	.34820265 03	PSS	.10179383 03	PSM	.83627792 01		
UT	.48000000 02	DHA	.41347490-02	DDE	-.11737675-04	DEL	.34764403-02	DAZ	-.17400206-02		
ET	.47999055 02	RGE	.31995067 06	DRG	.68100928 00	DDR	-.70806625-05	SLS	.20219573 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10191299 03	POL	.16323078 03		
DT	.10672404 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14781282 06				
ESS1	-.13079573 03	ESS2	-.15439573 03	F1	.10368615 06	F2	.10436170 06	PRA	.29495039 03		
RF	.00000000 00	DOP	.45347606-07								

2 DAYS 1 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.41966435 APRIL 25,1962 22 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.12350974 06	Y	-.27750791 06	Z	-.11287628 06	DX	.58397340 00	DY	-.85520762 00	DZ	-.28963452 00		
R	.32404684 06	DEC	-.20385401 02	RA	.29399229 03	V	.10753107 01	PTH	.79084021 02	AZ	.65829796 02		
R	.32404683 06	LAT	-.20385401 02	LON	.10947853 03	VE	.21989689 02	PTE	.27521640 01	AZE	.27021749 03		
XS	.12299200 09	YS	.79634139 08	ZS	.34531128 08	DXS	-.16678128 02	DYS	.22430243 02	DZS	.97251007 01		
XM	.96807082 05	YM	-.34366770 06	ZM	-.13111843 06	DXM	.98193093 00	DYM	.31008964 00	DZM	.46394606-01		
XT	.96807082 05	YT	-.34366770 06	ZT	-.13111843 06	DXT	.98193093 00	DYT	.31008964 00	DZT	.46394606-01		
RS	.15053580 09	VS	.29594819 02	RM	.38035659 06	VM	.10307746 01	RT	.38035659 06	VT	.10307746 01		
GED	-.20512787 02	ALT	.31767124 06	LOS	.20840824 03	RAS	.32922010 02	RAM	.28573189 03	LOM	.10121813 03		
DUT	.34000000 02	DT	.19200000 04	DR	.10558540 01	SHA	.31599578 06	DES	.13261051 02	DEM	-.20165009 02		

OOMJET 1 UNIFORM TIME TAU .00000000 00

R	.32404683 06		LAT	-.20385401 02		LONG	.10947853 03				
MIN	.29400000 04	HA	.27887359 02	DEC	-.20131014 02	ELE	.62636304 02	AZI	.28716682 03		
CKM	.34810389 03	CKC	.28484806 03	CKT	.34810389 03	PSS	.10320364 03	PSM	.77961652 01		
UT	.49000000 02	DHA	.42081591-02	DDE	.25576075-04	DEL	-.34513744-02	DAZ	-.41847099-02		
ET	.48999055 02	RGE	.31837410 06	DRG	.12292551 01	DDR	.21005158-04	SLS	.20215282 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10332155 03	POL	.39002230 02		
DT	.10619815 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14605694 06				
ESS1	-.13075282 03	ESS2	-.15435282 03	F1	.10539070 06	F2	.10787309 06	PRA	.29351142 03		
RF	.00000000 00	DOP	-.13452606-06								

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.32404683 06		LAT	-.20385401 02		LONG	.10947853 03				
MIN	.29400000 04	HA	.27713126 03	DEC	-.19971650 02	ELE	.14679380 02	AZI	.10540782 03		
CKM	.34801114 03	CKC	.28475532 03	CKT	.34801114 03	PSS	.10173406 03	PSM	.79425569 01		
UT	.49000000 02	DHA	.41563946-02	DDE	-.11562606-04	DEL	.36139893-02	DAZ	-.15330988-02		
ET	.48999055 02	RGE	.32237252 06	DRG	.66897054 00	DDR	.41469320-06	SLS	.20226123 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10185414 03	POL	.16752780 03		
DT	.10753188 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14785137 06				
ESS1	-.13086123 03	ESS2	-.15446123 03	F1	.10364458 06	F2	.10428459 06	PRA	.29506728 03		
RF	.00000000 00	DOP	-.26558734-08								

CASE 1 SPACE TRAJECTORIES 35

RANGER-4 ORBIT 042362 STATION PRINTS BK

2 DAYS 2 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.46133102 APRIL 25,1962 23 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.12560039 06	Y	-.28057102 06	Z	-.11391189 06	DX	.57747393 00	DY	-.84662576 00	DZ	-.28574186 00
R	.32782841 06	DEC	-.20332897 02	RA	.29411615 03	V	.10639078 01	PTH	.79215466 02	AZ	.65500516 02
R	.32782841 06	LAT	-.20332897 02	LON	.94561316 02	VE	.22259606 02	PTE	.26910979 01	AZE	.27021272 03
XS	.12293193 09	YS	.79714871 08	ZS	.34566130 08	DXS	-.16695382 02	DYS	.22419194 02	DZS	.97203039 01
XM	.10033728 06	YM	-.34253502 06	ZM	-.13094517 06	DXM	.97926839 00	DYM	.31917128 00	DZM	.49861477-01
XT	.10033728 06	YT	-.34253502 06	ZT	-.13094517 06	DXT	.97926839 00	DYT	.31917128 00	DZT	.49861477-01
RS	.15053749 09	VS	.29594599 02	RM	.38019001 06	VM	.10311756 01	RT	.38019001 06	VT	.10311756 01
GED	-.20460013 02	ALT	.32145282 06	LOS	.19340645 03	RAS	.32961280 02	RAM	.28632666 03	LOM	.86771829 02
DUT	.34000000 02	DT	.19200000 04	DR	.10451158 01	SHA	.31978792 06	DES	.13274587 02	DEM	-.20146413 02

DOMJET 1 UNIFORM TIME TAU .00000000 00

R	.32782841 06	LAT	-.20332897 02	LONG	.94561316 02						
MIN	.30000000 04	HA	.43016750 02	DEC	-.20030587 02	ELE	.49906716 02	AZI	.27561380 03		
CKM	.34807923 03	CKC	.28496062 03	CKT	.34807923 03	PSS	.10330923 03	PSM	.73095702 01		
UT	.50000000 02	DHA	.41964397-02	DDE	.30008459-04	DEL	-.35845891-02	DAZ	-.25493288-02		
ET	.49999055 02	RGE	.32292776 06	DRG	.12981462 01	DDR	.17014630-04	SLS	.20227618 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10342878 03	POL	.34538222 02		
DT	.10771709 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14583630 06				
ESS1	-.13087618 03	ESS2	-.15447618 03	F1	.10561243 06	F2	.10831432 06	PRA	.29342310 03		
RF	.00000000 00	DOP	-.10896900-06								

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.32782841 06	LAT	-.20332897 02	LONG	.94561316 02						
MIN	.30000000 04	HA	.29213183 03	DEC	-.20010436 02	ELE	.27869900 02	AZI	.10006821 03		
CKM	.34782476 03	CKC	.28470615 03	CKT	.34782476 03	PSS	.10174441 03	PSM	.75042331 01		
UT	.50000000 02	DHA	.41769681-02	DDE	-.97124630-05	DEL	.37079312-02	DAZ	-.14554559-02		
ET	.49999055 02	RGE	.32479964 06	DRG	.68384988 00	DDR	.77888167-05	SLS	.20232638 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10186538 03	POL	.17073625 03		
DT	.10834148 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14780372 06				
ESS1	-.13092638 03	ESS2	-.15452638 03	F1	.10370001 06	F2	.10437990 06	PRA	.29510777 03		
RF	.00000000 00	DOP	-.49882929-07								

2 DAYS 3 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.50299768 APRIL 26,1962 00 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.12766746 06	Y	-.28360447 06	Z	-.11493390 06	DX	.57087079 00	DY	-.83875298 00	DZ	-.28208493 00
R	.33157243 06	DEC	-.20281503 02	RA	.29423538 03	V	.10530774 01	PTH	.79367844 02	AZ	.65118774 02
R	.33157242 06	LAT	-.20281504 02	LON	.79639436 02	VE	.22527263 02	PTE	.26333375 01	AZE	.27020814 03
XS	.12287179 09	YS	.79795568 08	ZS	.34601118 08	DXS	-.16712628 02	DYS	.22408133 02	DZS	.97155021 01
XM	.10385773 06	YM	-.34136968 06	ZM	-.13075942 06	DXM	.97650967 00	DYM	.32823539 00	DZM	.53328657-01
XT	.10385773 06	YT	-.34136968 06	ZT	-.13075942 06	DXT	.97650967 00	DYT	.32823539 00	DZT	.53328657-01
RS	.15053918 09	VS	.29594381 02	RM	.38002330 06	VM	.10315782 01	RT	.38002330 06	VT	.10315782 01
GED	-.20408354 02	ALT	.32519681 06	LOS	.17840461 03	RAS	.33000555 02	RAM	.28692177 03	LOM	.72325824 02
DUT	.34000000 02	DT	.19200000 04	DR	.10349981 01	SHA	.32353958 06	DES	.13288117 02	DEM	-.20125806 02

RANGER-4 ORBIT 042362 STATION PRINTS BK

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OOMJET                1   UNIFORM TIME     TAU .00000000 00
   R        .33157242 06        LAT     -.20281504 02        LONG     .79639436 02
   MIN     .30600000 04  HA     .58098008 02  DEC   -.19916598 02  ELE    .36975188 02  AZI    .26756885 03
   CKM     .34804642 03  CKC    .28507931 03  CKT    .34804642 03  PSS    .10336785 03  PSM    .68266185 01
   UT      .51000000 02  DHA    .41815937-02  DDE    .33073394-04  DEL   -.35869779-02  DAZ   -.20149693-02
   ET      .50999055 02  RGE    .32770045 06  DRG    .13501546 01  DDR    .11688779-04  SLS    .20240361 03
   RDI     .63725296 04  PHI   -.31210140 02  THI    .13688502 03  SPS    .10348913 03  POL    .34160778 02
   DT      .10930909 01  RF1    .00000000 00  RF2    .00000000 00  BF1    .14566973 06
   ESS1   -.13100361 03  ESS2  -.15460361 03  F1     .10577872 06  F2     .10864742 06  PRA    .29338295 03
   RF      .00000000 00  DOP   -.74859961-07

JOBJET                1   UNIFORM TIME     TAU .00000000 00
   R        .33157242 06        LAT     -.20281504 02        LONG     .79639436 02
   MIN     .30600000 04  HA     .30720260 03  DEC   -.20039717 02  ELE    .41336278 02  AZI    .94739688 02
   CKM     .34764534 03  CKC    .28467823 03  CKT    .34764534 03  PSS    .10181799 03  PSM    .70489929 01
   UT      .51000000 02  DHA    .41951544-02  DDE   -.63145943-05  DEL    .37679888-02  DAZ   -.15388507-02
   ET      .50999055 02  RGE    .32732699 06  DRG    .72429205 00  DDR    .14532081-04  SLS    .20239371 03
   RDI     .63754947 04  PHI   -.25734820 02  THI    .27684780 02  SPS    .10193987 03  POL    .17285995 03
   DT      .10918452 01  RF1    .00000000 00  RF2    .00000000 00  BF1    .14767419 06
   ESS1   -.13099371 03  ESS2  -.15459370 03  F1     .10382473 06  F2     .10463892 06  PRA    .29507811 03
   RF      .00000000 00  DOP   -.93069691-07

   2 DAYS  4 HRS.  0 MIN.  0.000 SEC.          JULIAN DATE 2437780.54466435          APRIL 26,1962   01 04 19.000

GEOCENTRIC                                                                          EQUATORIAL COORDINATES

    X  .12971050 06     Y -.28661099 06     Z -.11594321 06    DX  .56411340 00    DY -.83167882 00    DZ -.27868497 00
    R  .33528122 06   DEC -.20231176 02    RA  .29434991 03     V  .10428705 01   PTH  .79546364 02    AZ  .64668549 02
    R  .33528122 06   LAT -.20231177 02   LON  .64712899 02    VE  .22792908 02   PTE  .25788787 01   AZE  .27020371 03
   XS  .12281159 09    YS  .79876221 08    ZS  .34636087 08   DXS -.16729867 02   DYS  .22397061 02   DZS  .97106958 01
   XM  .10736807 06    YM -.34017174 06    ZM -.13056120 06   DXM  .97365507 00   DYM  .33728030 00   DZM  .56795376-01
   XT  .10736807 06    YT -.34017174 06    ZT -.13056120 06   DXT  .97365507 00   DYT  .33728030 00   DZT  .56795376-01
   RS  .15054087 09    VS  .29594162 02    RM  .37985647 06    VM  .10319825 01    RT  .37985647 06    VT  .10319825 01
  GED -.20357767 02   ALT  .32890560 06   LOS  .16340282 03   RAS  .33039831 02   RAM  .28751720 03   LOM  .57880197 02
  DUT  .34000000 02    DT  .19200000 04    DR  .10255610 01   SHA  .32725281 06   DES  .13301641 02   DEM -.20103185 02

OOMJET                1   UNIFORM TIME     TAU .00000000 00
   R        .33528122 06        LAT     -.20231177 02        LONG     .64712899 02
   MIN     .31200000 04  HA     .73122032 02  DEC   -.19794297 02  ELE    .24149646 02  AZI    .26066073 03
   CKM     .34799463 03  CKC    .28519733 03  CKT    .34799463 03  PSS    .10337191 03  PSM    .63487744 01
   UT      .52000000 02  DHA    .41648876-02  DDE    .34609677-04  DEL   -.35302007-02  DAZ   -.18649547-02
   ET      .51999055 02  RGE    .33262365 06  DRG    .13812004 01  DDR    .54437806-05  SLS    .20253313 03
   RDI     .63725296 04  PHI   -.31210140 02  THI    .13688502 03  SPS    .10349502 03  POL    .35787830 02
   DT      .11095129 01  RF1    .00000000 00  RF2    .00000000 00  BF1    .14557030 06
   ESS1   -.13113313 03  ESS2  -.15473313 03  F1     .10586187 06  F2     .10884626 06  PRA    .29340000 03
   RF      .00000000 00  DOP   -.34864310-07
```

CASE 1 SPACE TRAJECTORIES 37

RANGER-4 ORBIT 042362 STATION PRINTS BK
JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.33528122 06		LAT	-.20231177 02		LONG	.64712899 02				
MIN	.31200000 04	HA	.32233270 03	DEC	-.20054338 02	ELE	.54956760 02	AZI	.88606136 02		
CKM	.34747225 03	CKC	.28467494 03	CKT	.34747225 03	PSS	.10194388 03	PSM	.65788354 01		
UT	.52000000 02	DHA	.42097759-02	DDE	-.15198968-05	DEL	.37915606-02	DAZ	-.19567377-02		
ET	.51999055 02	RGE	.33004149 06	DRG	.78714146 00	DDR	.20161535-04	SLS	.20246544 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10206672 03	POL	.17343999 03		
DT	.11008998 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14747290 06				
ESS1	-.13106544 03	ESS2	-.15466544 03	F1	.10403260 06	F2	.10504145 06	PRA	.29498909 03		
RF	.00000000 00	DOP	-.12912314-06								

2 DAYS 5 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.58633102 APRIL 26,1962 02 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.13172884 06	Y	-.28959365 06	Z	-.11694078 06	DX	.55713443 00	DY	-.82552800 00	DZ	-.27557235 00
R	.33895739 06	DEC	-.20181881 02	RA	.29445959 03	V	.10333612 01	PTH	.79757863 02	AZ	.64126834 02
R	.33895739 06	LAT	-.20181881 02	LON	.49781511 02	VE	.23056834 02	PTE	.25277813 01	AZE	.27019944 03
XS	.12275133 09	YS	.79956836 08	ZS	.34671039 08	DXS	-.16747097 02	DYS	.22385979 02	DZS	.97058845 01
XM	.11086796 06	YM	-.33894128 06	ZM	-.13035049 06	DXM	.97070451 00	DYM	.34630545 00	DZM	.60261517-01
XT	.11086796 06	YT	-.33894128 06	ZT	-.13035049 06	DXT	.97070451 00	DYT	.34630545 00	DZT	.60261517-01
RS	.15054256 09	VS	.29593943 02	RM	.37968953 06	VM	.10323886 01	RT	.37968953 06	VT	.10323886 01
GED	-.20308216 02	ALT	.33258175 06	LOS	.14840103 03	RAS	.33079112 02	RAM	.28811296 03	LOM	.43434883 02
DUT	.34000000 02	DT	.19200000 04	DR	.10168947 01	SHA	.33092984 06	DES	.13315159 02	DEM	-.20078550 02

DOMJET 1 UNIFORM TIME TAU .00000000 00

R	.33895739 06		LAT	-.20181881 02		LONG	.49781511 02				
MIN	.31800000 04	HA	.88084556 02	DEC	-.19669288 02	ELE	.11614925 02	AZI	.25390418 03		
CKM	.34791192 03	CKC	.28530816 03	CKT	.34791192 03	PSS	.10331827 03	PSM	.58764023 01		
UT	.52999999 02	DHA	.41476470-02	DDE	.34582455-04	DEL	-.34251969-02	DAZ	-.19162630-02		
ET	.52999055 02	RGE	.33761691 06	DRG	.13888095 01	DDR	-.12506651-05	SLS	.20266255 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10344325 03	POL	.38830269 02		
DT	.11261686 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14554593 06				
ESS1	-.13126255 03	ESS2	-.15486255 03	F1	.10588959 06	F2	.10889499 06	PRA	.29347854 03		
RF	.00000000 00	DOP	.80097964-08								

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.33895739 06		LAT	-.20181881 02		LONG	.49781511 02				
MIN	.31800000 04	HA	.33750758 03	DEC	-.20050255 02	ELE	.68545866 02	AZI	.79281702 02		
CKM	.34730163 03	CKC	.28469788 03	CKT	.34730163 03	PSS	.10210789 03	PSM	.60963621 01		
UT	.52999999 02	DHA	.42199060-02	DDE	.40086175-05	DEL	.37336831-02	DAZ	-.36416217-02		
ET	.52999055 02	RGE	.33301563 06	DRG	.86762200 00	DDR	.24267511-04	SLS	.20254336 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10223175 03	POL	.17035464 03		
DT	.11108204 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14721515 06				
ESS1	-.13114336 03	ESS2	-.15474336 03	F1	.10426819 06	F2	.10555691 06	PRA	.29485527 03		
RF	.00000000 00	DOP	-.15541957-06								

RANGER-4 ORBIT 042362 STATION PRINTS BK

2 DAYS 6 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.62799768 APRIL 26,1962 03 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.13372152 06	Y	-.29255609 06	Z	-.11792772 06	DX	.54984106 00	DY	-.82047629 00	DZ	-.27279053 00
R	.34260393 06	DEC	-.20133581 02	RA	.29456419 03	V	.10246566 01	PTH	.80011605 02	AZ	.63459338 02
R	.34260393 06	LAT	-.20133581 02	LON	.34845050 02	VE	.23319407 02	PTE	.24801962 01	AZE	.27019530 03
XS	.12269100 09	YS	.80037410 08	ZS	.34705973 08	DXS	-.16764320 02	DYS	.22374885 02	DZS	.97010686 01
XM	.11435706 06	YM	-.33767836 06	ZM	-.13012731 06	DXM	.96765800 00	DYM	.35530993 00	DZM	.63726744-01
XT	.11435706 06	YT	-.33767836 06	ZT	-.13012731 06	DXT	.96765800 00	DYT	.35530993 00	DZT	.63726744-01
RS	.15054426 09	VS	.29593726 02	RM	.37952249 06	VM	.10327963 01	RT	.37952249 06	VT	.10327963 01
GED	-.20259666 02	ALT	.33622828 06	LOS	.13339926 03	RAS	.33118397 02	RAM	.28870902 03	LOM	.28989876 02
DUT	.34000000 02	DT	.19200000 04	DR	.10091258 01	SHA	.33457318 06	DES	.13328670 02	DEM	-.20051896 02

OOMJET 1 UNIFORM TIME TAU .00000000 00

R .34260393 06 LAT -.20133581 02 LONG .34845050 02

MIN	.32400000 04	HA	.10298599 03	DEC	-.19547090 02	ELE	-.44353968 00	AZI	.24667784 03
CKM	.34778490 03	CKC	.28540611 03	CKT	.34778490 03	PSS	.10320814 03	PSM	.54088380 01
UT	.54000000 02	DHA	.41311550-02	DDE	.33068867-04	DEL	-.32628474-02	DAZ	-.21239428-02
ET	.53999055 02	RGE	.34259399 06	DRG	.13722408 01	DDR	-.79075281-05	SLS	.20278966 03
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10333502 03	POL	.43219742 02
DT	.11427704 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14559900 06		
ESS1	-.13138966 03	ESS2	-.15498966 03	F1	.10583415 06	F2	.10878887 06	PRA	.29361817 03
RF	.00000000 00	DOP	.50643207-07						

JOBJET 1 UNIFORM TIME TAU .00000000 00

R .34260393 06 LAT -.20133581 02 LONG .34845050 02

MIN	.32400000 04	HA	.35270992 03	DEC	-.20024890 02	ELE	.81188160 02	AZI	.51101567 02
CKM	.34712554 03	CKC	.28474674 03	CKT	.34712554 03	PSS	.10229356 03	PSM	.56044623 01
UT	.54000000 02	DHA	.42249707-02	DDE	.10124071-04	DEL	.29552404-02	DAZ	-.17300451-01
ET	.53999055 02	RGE	.33630229 06	DRG	.95968124 00	DDR	.26557014-04	SLS	.20262866 03
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10241856 03	POL	.14813331 03
DT	.11217835 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14692031 06		
ESS1	-.13122866 03	ESS2	-.15482866 03	F1	.10454535 06	F2	.10614653 06	PRA	.29469400 03
RF	.00000000 00	DOP	-.17008253-06						

2 DAYS 7 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.66966435 APRIL 26,1962 04 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.13568718 06	Y	-.29550270 06	Z	-.11890534 06	DX	.54210079 00	DY	-.81677650 00	DZ	-.27040234 00
R	.34622440 06	DEC	-.20086248 02	RA	.29466336 03	V	.10169142 01	PTH	.80320371 02	AZ	.62612611 02
R	.34622439 06	LAT	-.20086248 02	LON	.19903154 02	VE	.23581099 02	PTE	.24363865 01	AZE	.27019127 03
XS	.12263062 09	YS	.80117943 08	ZS	.34740891 08	DXS	-.16781534 02	DYS	.22363779 02	DZS	.96962480 01
XM	.11783501 06	YM	-.33638306 06	ZM	-.12989166 06	DXM	.96451556 00	DYM	.36429282 00	DZM	.67190717-01
XT	.11783501 06	YT	-.33638306 06	ZT	-.12989166 06	DXT	.96451556 00	DYT	.36429282 00	DZT	.67190717-01
RS	.15054595 09	VS	.29593508 02	RM	.37935537 06	VM	.10332057 01	RT	.37935537 06	VT	.10332057 01
GED	-.20212087 02	ALT	.33984874 06	LOS	.11839747 03	RAS	.33157684 02	RAM	.28930536 03	LOM	.14545151 02
DUT	.34000000 02	DT	.19200000 04	DR	.10024368 01	SHA	.33818575 06	DES	.13342174 02	DEM	-.20023223 02

RANGER-4 ORBIT 042362 STATION PRINTS BK
JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.34622439 06		LAT	-.20086248 02		LONG	.19903154 02				
MIN	.33000000 04	HA	.79210846 01	DEC	-.19977364 02	ELE	.80707828 02	AZI	.30666726 03		
CKM	.34693065 03	CKC	.28481938 03	CKT	.34693065 03	PSS	.10248353 03	PSM	.51059981 01		
UT	.55000000 02	DHA	.42248150-02	DDE	.16237922-04	DEL	-.30630497-02	DAZ	-.15647423-01		
ET	.54999055 02	RGE	.33993103 06	DRG	.10564755 01	DDR	.26888371-04	SLS	.20272188 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10260979 03	POL	.49663706 02		
DT	.11338877 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14661030 06				
ESS1	-.13132188 03	ESS2	-.15492188 03	F1	.10486409 06	F2	.10676647 06	PRA	.29452390 03		
RF	.00000000 00	DOP	-.17220468-06								

2 DAYS 8 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.71133102 APRIL 26,1962 05 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.13762389 06	Y	-.29843893 06	Z	-.11987519 06	DX	.53371658 00	DY	-.81480283 00	DZ	-.26850073 00
R	.34982309 06	DEC	-.20039857 02	RA	.29475650 03	V	.10103710 01	PTH	.80702354 02	AZ	.61498535 02
R	.34982308 06	LAT	-.20039858 02	LON	.49553214 01	VE	.23842545 02	PTE	.23968115 01	AZE	.27018735 03
XS	.12257017 09	YS	.80198436 08	ZS	.34775791 08	DXS	-.16798742 02	DYS	.22352663 02	DZS	.96914227 01
XM	.12130148 06	YM	-.33505547 06	ZM	-.12964354 06	DXM	.96127727 00	DYM	.37325318 00	DZM	.70653103-01
XT	.12130148 06	YT	-.33505547 06	ZT	-.12964354 06	DXT	.96127727 00	DYT	.37325318 00	DZT	.70653103-01
RS	.15054764 09	VS	.29593292 02	RM	.37918816 06	VM	.10336168 01	RT	.37918816 06	VT	.10336168 01
GED	-.20165456 02	ALT	.34344742 06	LOS	.10339570 03	RAS	.33196975 02	RAM	.28990198 03	LOM	.10070419 00
DUT	.34000000 02	DT	.19200000 04	DR	.99709716 00	SHA	.34177100 06	DES	.13355673 02	DEM	-.19992530 02

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.34982308 06		LAT	-.20039858 02		LONG	.49553214 01				
MIN	.33600000 04	HA	.23122657 02	DEC	-.19908557 02	ELE	.67940349 02	AZI	.28054235 03		
CKM	.34669624 03	CKC	.28491190 03	CKT	.34669624 03	PSS	.10266095 03	PSM	.46034446 01		
UT	.55999999 02	DHA	.42197299-02	DDE	.21869760-04	DEL	-.37443696-02	DAZ	-.34935991-02		
ET	.55999055 02	RGE	.34390612 06	DRG	.11509588 01	DDR	.25293446-04	SLS	.20282287 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10278859 03	POL	.29453149 02		
DT	.11471472 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14630770 06				
ESS1	-.13142287 03	ESS2	-.15502287 03	F1	.10515511 06	F2	.10737162 06	PRA	.29436340 03		
RF	.00000000 00	DOP	-.16199010-06								

2 DAYS 8 HRS. 16 MIN. 7.664 SEC. JULIAN DATE 2437780.72253083 APRIL 26,1962 05 20 26.664

GEOCENTRIC EQUATORIAL COORDINATES

X	.13813921 06	Y	-.29922730 06	Z	-.12013481 06	DX	.53131710 00	DY	-.81463418 00	DZ	-.26808923 00
R	.35078738 06	DEC	-.20027544 02	RA	.29478055 03	V	.10088600 01	PTH	.80820685 02	AZ	.61135837 02
R	.35078737 06	LAT	-.20027544 02	LON	.93630751 00	VE	.23912888 02	PTE	.23869837 01	AZE	.27018631 03
XS	.12255391 09	YS	.80220068 08	ZS	.34785159 08	DXS	-.16803365 02	DYS	.22349673 02	DZS	.96901247 01
XM	.12223125 06	YM	-.33469312 06	ZM	-.12957472 06	DXM	.96039049 00	DYM	.37565774 00	DZM	.71583464-01
XT	.12223125 06	YT	-.33469312 06	ZT	-.12957472 06	DXT	.96039049 00	DYT	.37565774 00	DZT	.71583464-01
RS	.15054809 09	VS	.29593234 02	RM	.37914321 06	VM	.10337276 01	RT	.37914321 06	VT	.10337276 01
GED	-.20153078 02	ALT	.34441170 06	LOS	.99363288 02	RAS	.33207538 02	RAM	.29006239 03	LOM	.35621814 03
DUT	.34000000 02	DT	.19200000 04	DR	.99594048 00	SHA	.34273058 06	DES	.13359301 02	DEM	-.19983935 02

RANGER-4 ORBIT 042362 STATION PRINTS BK
JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.35078737 06		LAT	-.20027544 02		LONG	.93630751 00				
MIN	.33761277 04	HA	.27204934 02	DEC	-.19886723 02	ELE	.64301358 02	AZI	.27751618 03		
CKM	.34662272 03	CKC	.28493952 03	CKT	.34662272 03	PSS	.10270451 03	PSM	.44679071 01		
UT	.56268795 02	DHA	.42176056-02	DDE	.23244735-04	DEL	-.37739095-02	DAZ	-.28130911-02		
ET	.56267850 02	RGE	.34503160 06	DRG	.11750890 01	DDR	.24559387-04	SLS	.20285125 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10283255 03	POL	.28066491 02		
DT	.11509014 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14623042 06				
ESS1	-.13145125 03	ESS2	-.15505125 03	F1	.10523826 06	F2	.10752617 06	PRA	.29432410 03		
RF	.00000000 00	DOP	-.15728887-06								

SELENOCENTRIC EQUATORIAL COORDINATES

X	.15907959 05	Y	.35465824 05	Z	.94399111 04	DX	-.42907339 00	DY	-.11902919 01	DZ	-.33967270 00
R	.39999996 05	DEC	.13650447 02	RA	.65841696 02	V	.13100673 01	PTH	-.85580105 02	AZ	.25132207 03
R	.39999993 05	LAT	-.92495453 01	LON	.31165199 03	VR	.13222206 01	PTR	-.81063684 02	AZR	.26521014 03
LTS	-.15103956 01	LNS	.28087790 03	LTE	-.28298481 01	LNE	.35411773 03				
ALT	.38261996 05	SHA	-.20944147 05	ALP	.12917051 02	DR	-.13061712 01	DP	.14461547-03	ASD	.24902844 01
HGE	.28243395 03	SVL	-.70712000 01	HNG	.14913945 03	SIA	.13039500 03				

SELENOCENTRIC CONIC EQUATORIAL COORDINATES

EPOCH OF PERICENTER PASSAGE JULIAN DATE 2437781.04107422 APRIL 26,1962 12 59 08.814

SMA	-.33310436 04	ECC	.14138711 01	INC	.15701047 03	LAN	.21092237 03	APF	.27324920 03	RCA	.13786227 04
VH	.12129461 01	C3	.14712383 01	C1	.40384195 04	SLR	.33278176 04	APO	.00000000 00	TFP	-.27522149 05
TA	-.13042377 03	EA	-.16669821 03	MA	-.57420395 03	DAI	-.15078692 02	RAI	.25034494 03	MTA	.13501387 03
WX	-.20070286 00	WY	.33505300 00	WZ	-.92057628 00	PX	.42367986 00	PY	-.81758473 00	PZ	-.38993831 00
QX	-.88329855 00	QY	-.46828955 00	QZ	.22136896-01	RX	.87501629-01	RY	.24498800 00	RZ	-.96556939 00
SXO	-.92409454 00	SYO	.24720924 00	SZO	.29144416 00	DAO	.16944434 02	RAO	.16502321 03	TF	.63913836 02
SXI	-.32477561 00	SYI	-.90931021 00	SZI	-.26014545 00	TX	-.94173471 00	TY	.33635657 00	TZ	.00000000 00
BX	.92425068 00	BY	-.24676838 00	BZ	-.29131775 00	MX	.89529675 00	MY	-.31874683 00	MZ	-.31120256 00
B.T	-.31742869 04	B.R	.10045093 04	B	.33294348 04	PER	.95110982 03	DEF	.90027753 02	C3J	-.17559321 01
OP1	.90000000 02	OY	-.96720374 01	OP2	-.42885288 02						
BTE	-.31742869 04	BRE	.10045093 04	BTO	-.33006706 04	BRO	.43670332 03	M1	-.10045093 04	M2	.31742869 04
GP	-.00000000 00	IR	.38209097 04	THA	.16243992 03						
ZAE	.13746402 03	ZAP	.14412858 03	ZAC	.10877403 03	ETE	.16664480 03	ETS	.21204416 01	ETC	.25403715 03

2 DAYS 9 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.75299768 APRIL 26,1962 06 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.13952883 06	Y	-.30137201 06	Z	-.12083929 06	DX	.52438039 00	DY	-.81513053 00	DZ	-.26722750 00
R	.35340559 06	DEC	-.19994385 02	RA	.29484313 03	V	.10053970 01	PTH	.81184171 02	AZ	.59960997 02
R	.35340558 06	LAT	-.19994386 02	LON	.35000078 03	VE	.24104656 02	PTE	.23622226 01	AZE	.27018350 03
XS	.12250966 09	YS	.80278889 08	ZS	.34810673 08	DXS	-.16815940 02	DYS	.22341535 02	DZS	.96865923 01
XM	.12475611 06	YM	-.33369566 06	ZM	-.12938296 06	DXM	.95794316 00	DYM	.38219009 00	DZM	.74113555-01
XT	.12475611 06	YT	-.33369566 06	ZT	-.12938296 06	DXT	.95794316 00	DYT	.38219009 00	DZT	.74113555-01
RS	.15054932 09	VS	.29593075 02	RM	.37902088 06	VM	.10340296 01	RT	.37902088 06	VT	.10340296 01
GED	-.20119747 02	ALT	.34702991 06	LOS	.88393924 02	RAS	.33236270 02	RAM	.29049886 03	LOM	.34565651 03
DUT	.34000000 02	DT	.24000000 03	DR	.99351931 00	SHA	.34533329 06	DES	.13369166 02	DEM	-.19959815 02

CASE 1 SPACE TRAJECTORIES 41

RANGER-4 ORBIT 042362 STATION PRINTS BK

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.35340558 06		LAT	-.19994386 02		LONG	.35000078 03				
MIN	.34200000 04	HA	.38298069 02	DEC	-.19820991 02	ELE	.54321777 02	AZI	.27148611 03		
CKM	.34639025 03	CKC	.28501912 03	CKT	.34639025 03	PSS	.10281090 03	PSM	.40985291 01		
UT	.56999999 02	DHA	.42104315-02	DDE	.26595757-04	DEL	-.37992325-02	DAZ	-.19215474-02		
ET	.56999055 02	RGE	.34820718 06	DRG	.12365243 01	DDR	-.17014118 39	SLS	.20293082 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10294006 03	POL	.26615649 02		
DT	.11614939 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14603366 06				
ESS1	-.13153082 03	ESS2	-.15513082 03	F1	.10540455 06	F2	.10791964 06	PRA	.29422906 03		

2 DAYS 10 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.79466435 APRIL 26,1962 07 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.14139772 06	Y	-.30431172 06	Z	-.12180025 06	DX	.51357974 00	DY	-.81868879 00	DZ	-.26680871 00
R	.35697932 06	DEC	-.19949814 02	RA	.29492182 03	V	.10025978 01	PTH	.81806095 02	AZ	.57695616 02
R	.35697931 06	LAT	-.19949814 02	LON	.33503841 03	VE	.24368805 02	PTE	.23338816 01	AZE	.27017970 03
XS	.12244909 09	YS	.80359302 08	ZS	.34845537 08	DXS	-.16833131 02	DYS	.22330396 02	DZS	.96817573 01
XM	.12819858 06	YM	-.33230372 06	ZM	-.12910992 06	DXM	.95451333 00	DYM	.39110263 00	DZM	.77571741-01
XT	.12819858 06	YT	-.33230372 06	ZT	-.12910992 06	DXT	.95451333 00	DYT	.39110263 00	DZT	.77571741-01
RS	.15055101 09	VS	.29592859 02	RM	.37885354 06	VM	.10344440 01	RT	.37885354 06	VT	.10344440 01
GED	-.20074943 02	ALT	.35060363 06	LOS	.73392154 02	RAS	.33275570 02	RAM	.29109599 03	LOM	.33121257 03
DUT	.34000000 02	DT	.95999999 03	DR	.99236269 00	SHA	.34887830 06	DES	.13382651 02	DEM	-.19925080 02

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.35697931 06		LAT	-.19949814 02		LONG	.33503841 03				
MIN	.34800000 04	HA	.53434005 02	DEC	-.19718554 02	ELE	.40669176 02	AZI	.26543065 03		
CKM	.34596094 03	CKC	.28513495 03	CKT	.34596094 03	PSS	.10292168 03	PSM	.35918458 01		
UT	.58000000 02	DHA	.41980090-02	DDE	.30087103-04	DEL	-.37786343-02	DAZ	-.15261179-02		
ET	.57999055 02	RGE	.35279170 06	DRG	.13076554 01	DDR	-.17014118 39	SLS	.20304444 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10305248 03	POL	.27263618 02		
DT	.11767863 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14580585 06				
ESS1	-.13164444 03	ESS2	-.15524444 03	F1	.10564014 06	F2	.10837522 06	PRA	.29413419 03		

2 DAYS 11 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.83633102 APRIL 26,1962 08 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.14322380 06	Y	-.30727231 06	Z	-.12276178 06	DX	.50039084 00	DY	-.82708338 00	DZ	-.26762668 00
R	.36055482 06	DEC	-.19906133 02	RA	.29499087 03	V	.10030364 01	PTH	.82630247 02	AZ	.54023842 02
R	.36055481 06	LAT	-.19906133 02	LON	.32006638 03	VE	.24637250 02	PTE	.23139946 01	AZE	.27017591 03
XS	.12238845 09	YS	.80439677 08	ZS	.34880384 08	DXS	-.16850314 02	DYS	.22319247 02	DZS	.96769179 01
XM	.13162852 06	YM	-.33087974 06	ZM	-.12882444 06	DXM	.95098785 00	DYM	.39998984 00	DZM	.81027307-01
XT	.13162852 06	YT	-.33087974 06	ZT	-.12882444 06	DXT	.95098785 00	DYT	.39998984 00	DZT	.81027307-01
RS	.15055270 09	VS	.29592644 02	RM	.37868616 06	VM	.10348600 01	RT	.37868616 06	VT	.10348600 01
GED	-.20031034 02	ALT	.35417911 06	LOS	.58390396 02	RAS	.33314873 02	RAM	.29169334 03	LOM	.31676887 03
DUT	.34000000 02	DT	.48000000 03	DR	.99475030 00	SHA	.35241390 06	DES	.13396131 02	DEM	-.19888320 02

RANGER-4 ORBIT 042362 STATION PRINTS 8K
JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R	.36055481 06		LAT	-.19906133 02		LONG	.32006638 03				
MIN	.35400000 04	HA	.28226818 03	DEC	-.20515490 02	ELE	-.22242963 01	AZI	.11366904 03		
CKM	.34410631 03	CKC	.28404227 03	CKT	.34410631 03	PSS	.10150945 03	PSM	.31385600 01		
UT	.59000000 02	DHA	.41765632-02	DDE	-.69079826-05	DEL	.31248294-02	DAZ	.23547915-02		
ET	.58999055 02	RGE	.36074590 06	DRG	.64740834 00	DDR	-.17014118 39	SLS	.20323810 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.10164391 03	POL	.22702976 03		
DT	.12033186 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14792043 06				
ESS1	-.13183810 03	ESS2	-.15543810 03	F1	.10358915 06	F2	.10414650 06	PRA	.29585168 03		

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.36055481 06		LAT	-.19906133 02		LONG	.32006638 03				
MIN	.35400000 04	HA	.68521664 02	DEC	-.19606104 02	ELE	.27155570 02	AZI	.26013102 03		
CKM	.34531709 03	CKC	.28525305 03	CKT	.34531709 03	PSS	.10298589 03	PSM	.30825546 01		
UT	.59000000 02	DHA	.41838709-02	DDE	.32132705-04	DEL	-.37238904-02	DAZ	-.14512909-02		
ET	.58999055 02	RGE	.35760036 06	DRG	.13605915 01	DDR	-.17014118 39	SLS	.20316203 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10311844 03	POL	.29396678 02		
DT	.11928262 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14563631 06				
ESS1	-.13176203 03	ESS2	-.15536203 03	F1	.10579258 06	F2	.10871426 06	PRA	.29408760 03		

2 DAYS 12 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.87799768 APRIL 26,1962 09 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.14499555 06	Y	-.31027605 06	Z	-.12372946 06	DX	.48295525 00	DY	-.84336019 00	DZ	-.27038325 00				
R	.36414820 06	DEC	-.19863334 02	RA	.29504722 03	V	.10087662 01	PTH	.83747340 02	AZ	.47104288 02				
R	.36414818 06	LAT	-.19863334 02	LON	.30508158 03	VE	.24914100 02	PTE	.23067145 01	AZE	.27017212 03				
XS	.12232776 09	YS	.80520009 08	ZS	.34915215 08	DXS	-.16867490 02	DYS	.22308085 02	DZS	.96720734 01				
XM	.13504560 06	YM	-.32942382 06	ZM	-.12852653 06	DXM	.94736679 00	DYM	.40885080 00	DZM	.84479912-01				
XT	.13504560 06	YT	-.32942382 06	ZT	-.12852653 06	DXT	.94736679 00	DYT	.40885080 00	DZT	.84479912-01				
RS	.15055439 09	VS	.29592429 02	RM	.37851873 06	VM	.10352776 01	RT	.37851873 06	VT	.10352776 01				
GED	-.19988012 02	ALT	.35777248 06	LOS	.43388633 02	RAS	.33354178 02	RAM	.29229093 03	LOM	.30232538 03				
DUT	.34000000 02	DT	.48000000 03	DR	.10027653 01	SHA	.35595179 06	DES	.13409604 02	DEM	-.19849538 02				

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R	.36414818 06		LAT	-.19863334 02		LONG	.30508168 03				
MIN	.36000000 04	HA	.29733910 03	DEC	-.20537281 02	ELE	.86259918 01	AZI	.12271554 03		
CKM	.34292850 03	CKC	.28402184 03	CKT	.34292850 03	PSS	.10158184 03	PSM	.26275511 01		
UT	.59999999 02	DHA	.41961301-02	DDE	-.49734342-05	DEL	.28844972-02	DAZ	.26989009-02		
ET	.59999055 02	RGE	.36313798 06	DRG	.68658406 00	DDR	-.17014118 39	SLS	.20329550 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.10171716 03	POL	.23283710 03		
DT	.12112977 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14779496 06				
ESS1	-.13189550 03	ESS2	-.15549550 03	F1	.10370001 06	F2	.10439741 06	PRA	.29582183 03		

CASE 1 SPACE TRAJECTORIES 43

RANGER-4 ORBIT 042362 STATION PRINTS BK

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.36414818 06		LAT	-.19863334 02		LONG	.30508168 03				
MIN	.36000000 04	HA	.83557876 02	DEC	-.19489042 02	ELE	.13894972 02	AZI	.25479438 03		
CKM	.34427403 03	CKC	.28536737 03	CKT	.34427403 03	PSS	.10300146 03	PSM	.25679025 01		
UT	.59999999 02	DHA	.41697546-02	DDE	.32645318-04	DEL	-.36373014-02	DAZ	-.15358087-02		
ET	.59999055 02	RGE	.36256456 06	DRG	.13941492 01	DDR	-.17014118 39	SLS	.20328178 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10313583 03	POL	.32600282 02		
DT	.12093850 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14552883 06				
ESS1	-.13188178 03	ESS2	-.15548177 03	F1	.10590345 06	F2	.10892919 06	PRA	.29409245 03		

2 DAYS 13 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.91966435 APRIL 26,1962 10 04 19.000

GEOCENTRIC EQUATORIAL COORDINATES

X	.14669101 06	Y	-.31336153 06	Z	-.12471253 06	DX	.45687694 00	DY	-.87413789 00	DZ	-.27652461 00		
R	.36778650 06	DEC	-.19821408 02	RA	.29508526 03	V	.10243629 01	PTH	.85202618 02	AZ	.30265428 02		
R	.36778649 06	LAT	-.19821408 02	LON	.29007865 03	VE	.25208081 02	PTE	.23207651 01	AZE	.27016832 03		
XS	.12226700 09	YS	.80600301 08	ZS	.34950028 08	DXS	-.16884657 02	DYS	.22296913 02	DZS	.96672244 01		
XM	.13844947 06	YM	-.32793604 06	ZM	-.12821619 06	DXM	.94365028 00	DYM	.41768458 00	DZM	.87929216-01		
XT	.13844947 06	YT	-.32793604 06	ZT	-.12821619 06	DXT	.94365028 00	DYT	.41768458 00	DZT	.87929216-01		
RS	.15055607 09	VS	.29592215 02	RM	.37835128 06	VM	.10356968 01	RT	.37835128 06	VT	.10356968 01		
GED	-.19945867 02	ALT	.36141077 06	LOS	.28386871 02	RAS	.33393488 02	RAM	.29288871 03	LOM	.28788209 03		
DUT	.34000000 02	DT	.24000000 03	DR	.10207743 01	SHA	.35951095 06	DES	.13423071 02	DEM	-.19808732 02		

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R	.36778649 06		LAT	-.19821408 02		LONG	.29007865 03				
MIN	.36600000 04	HA	.31248016 03	DEC	-.20549770 02	ELE	.18381327 02	AZI	.13330522 03		
CKM	.34092070 03	CKC	.28402253 03	CKT	.34092070 03	PSS	.10171719 03	PSM	.20949092 01		
UT	.61000000 02	DHA	.42156269-02	DDE	-.17680605-05	DEL	.25080088-02	DAZ	.32121107-02		
ET	.60999055 02	RGE	.36572743 06	DRG	.75766704 00	DDR	-.17014118 39	SLS	.20335722 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.10185340 03	POL	.24063140 03		
DT	.12199352 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14756730 06				
ESS1	-.13195722 03	ESS2	-.15555722 03	F1	.10393560 06	F2	.10485268 06	PRA	.29572184 03		

JOBJET 1 UNIFORM TIME TAU .00000000 00

R	.36778649 06		LAT	-.19821408 02		LONG	.29007865 03				
MIN	.36600000 04	HA	.98546653 02	DEC	-.19372866 02	ELE	.10163936 01	AZI	.24891545 03		
CKM	.34237109 03	CKC	.28547292 03	CKT	.34237109 03	PSS	.10297296 03	PSM	.20418981 01		
UT	.61000000 02	DHA	.41579865-02	DDE	.31654242-04	DEL	-.35091802-02	DAZ	-.17533129-02		
ET	.60999055 02	RGE	.36761816 06	DRG	.14112243 01	DDR	-.17014118 39	SLS	.20340201 03		
RDI	.63754947 04	PHI	-.25734820 02	THI	.27684780 02	SPS	.10310922 03	POL	.36885952 02		
DT	.12262420 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14547415 06				
ESS1	-.13200201 03	ESS2	-.15560201 03	F1	.10595888 06	F2	.10903856 06	PRA	.29414474 03		

2 DAYS 14 HRS. 0 MIN. 0.000 SEC. JULIAN DATE 2437780.96133102 APRIL 26,1962 11 04 19.000

CASE 1 SPACE TRAJECTORIES 45

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GEOCENTRIC EQUATORIAL COORDINATES

X	.14946061 06	Y	-.32378617 06	Z	-.12771229 06	DX	-.82510278 00	DY	-.15337911 01	DZ	-.23564082 00
R	.37879597 06	DEC	-.19703527 02	RA	.29477818 03	V	.17575085 01	PTH	.37296236 02	AZ	.27537968 03
R	.37879596 06	LAT	-.19703527 02	LON	.24823530 03	VE	.27417915 02	PTE	.22259817 01	AZE	.27027413 03
XS	.12209890 09	YS	.80821826 08	ZS	.35046073 08	DXS	-.16932024 02	DYS	.22266002 02	DZS	.96538085 01
XM	.14777792 06	YM	-.32366292 06	ZM	-.12729476 06	DXM	.93289216 00	DYM	.44193035 00	DZM	.97434518-01
XT	.14777792 06	YT	-.32366292 06	ZT	-.12729476 06	DXT	.93289216 00	DYT	.44193035 00	DZT	.97434518-01
RS	.15056074 09	VS	.29591626 02	RM	.37788881 06	VM	.10368624 01	RT	.37788881 06	VT	.10368624 01
GED	-.19827367 02	ALT	.37242022 06	LOS	.34695919 03	RAS	.33502063 02	RAM	.29454048 03	LOM	.24799760 03
DUT	.34000000 02	DT	.59999999 02	DR	.10649379 01	SHA	.36974042 06	DES	.13460227 02	DEM	-.19685543 02

JETGOLD-3 1 UNIFORM TIME TAU .00000000 00

R .37879596 06 LAT -.19703527 02 LONG .24823530 03

MIN	.38256913 04	HA	.35488543 03	DEC	-.20497864 02	ELE	.34174060 02	AZI	.17420723 03		
CKM	.19637088 03	CKC	.28420924 03	CKT	.19637088 03	PSS	.10262253 03	PSM	.22641938 00		
UT	.63761522 02	DHA	.44669598-02	DDE	.20361826-04	DEL	.38907263-03	DAZ	.50355034-02		
ET	.63760577 02	RGE	.37518006 06	DRG	.10295805 01	DDR	-.17014118 39	SLS	.20357886 03		
RDI	.63720164 04	PHI	.35116540 02	THI	.24319539 03	SPS	.10276178 03	POL	.27478397 03		
DT	.12514658 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14669644 06				
ESS1	-.13217887 03	ESS2	-.15577886 03	F1	.10476708 06	F2	.10659422 06	PRA	.29485283 03		

DOMJET 1 UNIFORM TIME TAU .00000000 00

R .37879596 06 LAT -.19703527 02 LONG .24823530 03

MIN	.38256913 04	HA	.24783872 03	DEC	-.19131489 02	ELE	-.77572745 01	AZI	.11798679 03		
CKM	.19762332 03	CKC	.28546169 03	CKT	.19762332 03	PSS	.10169874 03	PSM	.22227654 00		
UT	.63761522 02	DHA	.43788469-02	DDE	-.10085103-05	DEL	.33077449-02	DAZ	-.25076170-02		
ET	.63760577 02	RGE	.37960347 06	DRG	.69973180 00	DDR	-.17014118 39	SLS	.20368067 03		
RDI	.63725296 04	PHI	-.31210140 02	THI	.13688502 03	SPS	.10184011 03	POL	.15342974 03		
DT	.12662207 01	RF1	.00000000 00	RF2	.00000000 00	BF1	.14775285 06				
ESS1	-.13228067 03	ESS2	-.15588067 03	F1	.10375544 06	F2	.10448162 06	PRA	.29558918 03		

GEOCENTRIC CONIC EQUATORIAL COORDINATES

EPOCH OF PERICENTER PASSAGE JULIAN DATE 2437779.00621805 APRIL 24,1962 12 08 57.240

SMA	-.40497910 06	ECC	.16545419 01	INC	.15960344 03	LAN	.22038373 03	APF	.22589135 03	RCA	.26507580 06
VH	.99209687 00	C3	.98425621 00	C1	.52960273 06	SLR	.70365481 06	APO	.00000000 00	TFP	.17526324 06
TA	.58779283 02	EA	.32926194 02	MA	.24599990 02	DAO	-.24076784 01	RAO	.22687667 03	MTA	.12718545 03
WX	-.22580457 00	WY	.26547216 00	WZ	-.93730295 00	PX	.96621617 00	PY	-.61687238-01	PZ	-.25024169 00
QX	-.12425184 00	QY	-.96214300 00	QZ	-.24257423 00	RX	.28716511-01	RY	.30662107-01	RZ	-.99911717 00
SXO	-.68296743 00	SYO	-.72923975 00	SZO	-.42009556-01	TX	-.72988411 00	TY	.68357091 00	TZ	.00000000 00
BX	.69467096 00	BY	-.63066148 00	BZ	-.34597452 00	MX	-.89069002 00	MY	-.44596009 00	MZ	.88265906-01
B.T	-.50079461 06	B.R	.18485183 06	B	.53332155 06	PER	.00000000 00	OMD	.27395999-05	NOD	.15137484-05
C3J	-.17709633 01										

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SELENOCENTRIC EQUATORIAL COORDINATES

X	.16826879 04	Y	-.12325529 03	Z	-.41752379 03	DX	-.17579949 01	DY	-.19757214 01	DZ	-.33307534 00
R	.17380899 04	DEC	-.13899518 02	RA	.35581062 03	V	.26655131 01	PTH	-.33774837 02	AZ	.25131470 03
R	.17380897 04	LAT	-.11964336 02	LON	.23145038 03	VR	.26692561 01	PTR	-.33721113 02	AZR	.27641480 03
LTS	-.15088972 01	LNS	.27707041 03	LTE	-.23842619 01	LNE	.35420805 03				
ALT	.89950561-01	SHA	-.12589763 04	ALP	.16926396 03	DR	-.14818404 01	DP	.73038480-01	ASD	.89417046 02
HGE	.28269402 03	SVL	-.12358062 02	HNG	.22510696 03	SIA	-.30990916 02				

SELENOCENTRIC CONIC EQUATORIAL COORDINATES

EPOCH OF PERICENTER PASSAGE JULIAN DATE 2437781.04080816 APRIL 26,1962 12 58 45.825

SMA	-.33435992 04	ECC	.13802332 01	INC	.15686102 03	LAN	.21119677 03	APF	.27521081 03	RCA	.12713477 04
VH	.12106666 01	C3	.14657136 01	C1	.38510007 04	SLR	.30261040 04	APO	.00000000 00	TFP	-.52534139 03
TA	-.57526939 02	EA	-.25556337 02	MA	-.10898698 02	DAI	-.15006686 02	RAI	.25004861 03	MTA	.13642853 03
WX	-.20354641 00	WY	.33613770 00	WZ	-.91955440 00	PX	.39665389 00	PY	-.83037322 00	PZ	-.39133870 00
QX	-.89511704 00	QY	-.44440042 00	QZ	.35689150-01	RX	.88353401-01	RY	.24339133 00	RZ	-.96589558 00
SXO	-.90434908 00	SYO	.29531114 00	SZO	.30812991 00	DAO	.17946564 02	RAO	.16191578 03	TF	.63907450 02
SXI	-.32958551 00	SYI	-.90792494 00	SZI	-.25893177 00	TX	-.93998247 00	TY	.34122271 00	TZ	.00000000 00
BX	.92192313 00	BY	-.25036718 00	BZ	-.29559098 00	MX	-.14595645 00	MY	-.93913929 00	MZ	-.31098890 00
B.T	-.30282814 04	B.R	.97344177 03	B	.31808925 04	PER	.88999164 03	DEF	.92857068 02	C3J	-.17709633 01
OP1	.90000000 02	OY	-.11006536 02	OP2	-.24549167 02						
BTE	-.30282814 04	BRE	.97344177 03	BTO	-.31521697 04	BRO	.42650202 03	M1	-.97344177 03	M2	.30282814 04
GP	-.00000000 00	IR	.38266166 04	THA	.16217998 03						
ZAE	.13716624 03	ZAP	.14471887 03	ZAC	.10876410 03	ETE	.16704042 03	ETS	.22720265 01	ETC	.25386001 03

614744547542 215472620534 213636320606 604426727545 603463165640 603445451541
620402321 419000 000000000000

APPENDIX E

History of Ground Modes and Transmitter VCO Frequencies

Table E-1 consists of a history of *Ranger 4* DSIF tracking by station, date, and ground mode.

Table E-1. *Ranger 4* DSIF 4 tracking

Station	Date	Ground Mode	From, GMT	To, GMT	Station	Date	Ground Mode	From, GMT	To, GMT
DSIF 1	23/24 April	GM-1	21:25:52	23:05:00	DSIF 2	25 April	GM-4	08:47:30	09:30:00
		GM-3	23:07:00	23:36:00			Searched for transponder	09:31:20	10:00:00
		GM-1	23:40:00	00:06:00			GM-4	10:00:09	13:00:00
		GM-3	00:07:34	07:23:00			Searched for transponder	13:00:17	13:30:00
DSIF 5		GM-3	21:14:37	23:05:43			GM-4	13:31:39	17:30:17
		GM-1	23:07:55	23:36:00			Searched for transponder	17:30:18	17:48:20
		GM-3	23:39:54	00:06:00					
		GM-1	00:07:54	02:40:00					
		GM-2	02:40:55	02:41:32					
		GM-1	02:42:00	07:21:50	DSIF 4	25/26 April	GM-4	14:23:00	15:03:00
		GM-4	08:14:30	08:43:20			Searched for transponder	15:03:32	15:33:37
DSIF 4		GM-3	22:22:00	22:40:00			GM-4	15:35:08	19:56:42
		GM-4	22:43:00	23:00:00	DSIF 4	25/26 April	Searched for transponder	19:59:26	20:30:00
		GM-3	23:00:10	23:35:00			GM-4	20:30:35	01:27:55
		GM-2	23:36:04	23:37:00			Searched for transponder	01:30:00	02:00:00
		GM-3	23:38:36	00:06:00			GM-4	02:01:50	02:13:06
DSIF 2	24 April	GM-4	08:32:40	17:03:13	DSIF 5		GM-4	21:40:13	23:07:00
DSIF 3		GM-4	09:00:40	12:28:57			Searched for transponder	23:08:00	23:38:00
		Searched for transponder	12:30:05	13:04:00			GM-4	23:38:00	03:00:00
		GM-4	13:05:00	15:25:00			Searched for transponder	03:03:00	03:32:00
		Searched for transponder	15:30:00	16:00:00			GM-4	03:33:00	07:00:00
DSIF 3	24 April	GM-4	16:04:00	17:04:40			Searched for transponder	07:00:30	07:30:00
DSIF 4	24/25 April	GM-4	13:52:44	15:00:00			GM-4	07:30:00	09:32:08
		Searched for transponder	15:00:00	15:31:55	DSIF 3	26 April	GM-4	08:33:00	09:52:00
		GM-4	15:58:47	18:23:00			Searched for transponder	09:52:00	10:25:00
		Searched for transponder	20:00:00	20:30:00			GM-4	10:25:00	12:47:54[a]
		GM-4	20:31:21	01:00:00			Searched for capsule	12:47:54	13:31:00
		Searched for transponder	01:20:00	01:30:00					
		GM-4	01:31:00	01:58:59	DSIF 2		GM-4	08:46:00	09:40:50
DSIF 5		GM-4	21:21:35	06:20:00			Searched for transponder	09:42:00	09:47:42
		Searched for transponder	06:20:00	06:50:00			GM-4	09:48:40	12:47:47[a]
		GM-4	06:50:00	09:25:11			Searched for capsule	12:47:47	13:32:10

[a] Loss of signal at lunar occultation.

Table E-2 consists of a history of the transmitter VCO frequency during the transponder tracking period.

Table E-2. Transmitter VCO frequencies

Station transmitting	Date	Time, GMT	VCO frequency, cps	Station transmitting	Date	Time, GMT	VCO frequency, cps
DSIF 1	23 April	21:30:00	29668226.0			01:10:00	29668599.0
		21:35:00	29668227.0			01:20:00	29668598.0
		21:40:00	29668227.0			01:30:00	29668597.0
		21:45:00	29668227.0			01:40:00	29668596.0
		21:50:00	29668226.0			01:50:00	29668601.4
		21:55:00	29668226.0			02:00:00	29668613.1
		22:00:00	29668226.0			02:10:00	29668012.0
		22:05:00	29668226.0			02:20:00	29668017.8
		22:10:00	29668225.0			02:30:00	29668018.0
		22:15:00	29668225.0			02:40:00	29668056.0
		22:20:00	29668225.0			02:50:00	29668056.0
		22:25:00	29668225.0			03:00:00	29668060.0
		22:30:00	29668225.0			03:10:00	29668061.0
		22:35:00	29668226.0			03:20:00	29668011.0
		22:40:00	29668225.0			03:30:00	29668011.0
		22:45:00	29668226.0			03:40:00	29668012.0
		22:50:00	29668228.0				
		22:55:00	29668228.0	DSIF 5	24 April	03:50:00	29668012.0
		23:00:00	29668228.0			04:00:00	29668011.0
		23:05:00	29668228.0			04:10:00	29668011.0
						04:20:00	29668012.0
DSIF 5		23:20:00	29668224.0			04:30:00	29668012.0
		23:25:00	29668224.0			04:40:00	29668011.0
		23:30:00	29668224.0			05:10:00	29668264.2
		23:35:00	29668225.0			05:20:00	29668264.1
DSIF 1		23:40:00	29668203.0			05:30:00	29668264.0
		23:45:00	29668203.0			05:40:00	29668264.0
		23:50:00	29668203.0			05:50:00	29668263.8
		23:55:00	29668204.0			06:00:00	29668263.8
	24 April	00:00:00	29668203.0			06:10:00	29668263.7
		00:05:00	29668204.0			06:20:00	29668263.7
DSIF 5		00:10:00	29668598.0			06:30:00	29668263.5
		00:20:00	29668600.0			06:40:00	29668263.6
		00:30:00	29668601.0			06:50:00	29668263.3
		00:40:00	29668600.0			07:00:00	29668263.3
		00:50:00	29668600.0			07:10:00	29668263.3
		01:00:00	29668599.0			07:20:00	29668263.3

APPENDIX F

Final Orbit Residual Listing

This Appendix consists of a listing of final orbit residuals.

JETMTS ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
212931.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13640809 06 1	.9082	.00000000 00 0	.0000
212941.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13649132 06 1	.6816	.00000000 00 0	.0000
213011.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13671363 06 1	.3730	.00000000 00 0	.0000
213021.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13677919 06 1	-1.1934	.00000000 00 0	.0000
213031.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13684076 06 1	-.7617	.00000000 00 0	.0000
213041.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13689849 06 1	.5078	.00000000 00 0	.0000
213051.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13695253 06 1	.4727	.00000000 00 0	.0000
213101.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13700301 06 1	-1.0117	.00000000 00 0	.0000
213111.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13705008 06 1	.9160	.00000000 00 0	.0000
213121.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13709387 06 1	-.8730	.00000000 00 0	.0000
213131.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13713451 06 1	.4922	.00000000 00 0	.0000
213141.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13717211 06 1	-1.1074	.00000000 00 0	.0000
213151.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13720679 06 1	.2109	.00000000 00 0	.0000
213201.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13723866 06 1	.9359	.00000000 00 0	.0000
213211.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13726784 06 1	1.1602	.00000000 00 0	.0000
213221.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13729442 06 1	-.4219	.00000000 00 0	.0000
213231.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13731850 06 1	.4961	.00000000 00 0	.0000
213241.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13734018 06 1	.8149	.00000000 00 0	.0000
213251.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13735956 06 1	-.5566	.00000000 00 0	.0000
213301.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13737670 06 1	.2949	.00000000 00 0	.0000
213311.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13739171 06 1	.2852	.00000000 00 0	.0000
213321.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13740467 06 1	-.6699	.00000000 00 0	.0000
213331.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13741564 06 1	.3555	.00000000 00 0	.0000
213341.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13742471 06 1	.2852	.00000000 00 0	.0000
213351.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13743195 06 1	.0488	.00000000 00 0	.0000
213401.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13743743 06 1	-.4277	.00000000 00 0	.0000
213411.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13744121 06 1	-.2070	.00000000 00 0	.0000
213421.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13744339 06 1	-.3535	.00000000 00 0	.0000
213431.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13744393 06 1	-.9297	.00000000 00 0	.0000
213441.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13744299 06 1	-.9941	.00000000 00 0	.0000
213451.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13744060 06 1	-.6016	.00000000 00 0	.0000
213501.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13743681 06 1	.1875	.00000000 00 0	.0000
213511.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13743168 06 1	.3242	.00000000 00 0	.0000
213521.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13742524 06 1	.7578	.00000000 00 0	.0000
213531.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13741756 06 1	-.5605	.00000000 00 0	.0000
213541.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13740868 06 1	-.6797	.00000000 00 0	.0000
213551.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13739864 06 1	-.6426	.00000000 00 0	.0000
213601.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13738749 06 1	-.4941	.00000000 00 0	.0000
213611.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13737527 06 1	-1.2754	.00000000 00 0	.0000
213621.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13736203 06 1	-.0293	.00000000 00 0	.0000
213631.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13734779 06 1	.2090	.00000000 00 0	.0000
213641.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13733260 06 1	.4004	.00000000 00 0	.0000
213651.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13731649 06 1	-.4922	.00000000 00 0	.0000
213701.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13729950 06 1	-.5039	.00000000 00 0	.0000
213711.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13728167 06 1	.3340	.00000000 00 0	.0000
213721.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13726301 06 1	-.0098	.00000000 00 0	.0000
213731.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13724357 06 1	-.5703	.00000000 00 0	.0000
213741.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13722337 06 1	-1.3750	.00000000 00 0	.0000
213801.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13718084 06 1	.1641	.00000000 00 0	.0000
213811.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13715854 06 1	.4551	.00000000 00 0	.0000
213821.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13713561 06 1	.3926	.00000000 00 0	.0000
213831.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13711205 06 1	-.0508	.00000000 00 0	.0000
213841.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13708790 06 1	1.1035	.00000000 00 0	.0000
213851.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13706317 06 1	.8301	.00000000 00 0	.0000
213901.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13703789 06 1	-.8926	.00000000 00 0	.0000
213911.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13701208 06 1	.9141	.00000000 00 0	.0000

JETMTS ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
213921.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13698577 06 1	1.2305	.00000000 00 0	.0000
213931.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13695897 06 1	-.9668	.00000000 00 0	.0000
213941.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13693170 06 1	.3047	.00000000 00 0	.0000
213951.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13690397 06 1	1.0273	.00000000 00 0	.0000
214001.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13687582 06 1	.1797	.00000000 00 0	.0000
214011.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13684725 06 1	-.2539	.00000000 00 0	.0000
214021.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13681829 06 1	-.2871	.00000000 00 0	.0000
214031.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13678894 06 1	1.0586	.00000000 00 0	.0000
214041.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13675923 06 1	.7695	.00000000 00 0	.0000
214051.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13672917 06 1	-.1680	.00000000 00 0	.0000
214101.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13669877 06 1	-.7715	.00000000 00 0	.0000
214111.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13666805 06 1	-.0547	.00000000 00 0	.0000
214121.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13663703 06 1	.9727	.00000000 00 0	.0000
214131.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13660571 06 1	-.7090	.00000000 00 0	.0000
214141.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13657411 06 1	-.1074	.00000000 00 0	.0000
214151.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13654223 06 1	-.2363	.00000000 00 0	.0000
214201.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13651011 06 1	-.1094	.00000000 00 0	.0000
214211.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13647773 06 1	.2637	.00000000 00 0	.0000
214221.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13644513 06 1	-.1289	.00000000 00 0	.0000
214231.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13641230 06 1	-.2969	.00000000 00 0	.0000
214241.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13637925 06 1	.7461	.00000000 00 0	.0000
214251.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13634600 06 1	.9961	.00000000 00 0	.0000
214301.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13631256 06 1	-.5625	.00000000 00 0	.0000
214311.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13627894 06 1	-.9375	.00000000 00 0	.0000
214321.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13624514 06 1	.8633	.00000000 00 0	.0000
214331.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13621117 06 1	-.1699	.00000000 00 0	.0000
214341.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13617705 06 1	-.0469	.00000000 00 0	.0000
214351.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13614277 06 1	.2266	.00000000 00 0	.0000
214401.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13610836 06 1	.6426	.00000000 00 0	.0000
214411.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13607381 06 1	-.8086	.00000000 00 0	.0000
214421.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13603913 06 1	-1.1328	.00000000 00 0	.0000
214431.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13600434 06 1	-.3398	.00000000 00 0	.0000
214441.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13596943 06 1	-.4316	.00000000 00 0	.0000
214451.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13593442 06 1	.5801	.00000000 00 0	.0000
214501.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13589931 06 1	-.3066	.00000000 00 0	.0000
214511.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13586411 06 1	-.1055	.00000000 00 0	.0000
214521.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13582881 06 1	.1855	.00000000 00 0	.0000
214531.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13579344 06 1	.5586	.00000000 00 0	.0000
214541.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13575800 06 1	.0039	.00000000 00 0	.0000
214551.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13572248 06 1	.5195	.00000000 00 0	.0000
214601.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13568690 06 1	.1016	.00000000 00 0	.0000
214611.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13565126 06 1	-.2617	.00000000 00 0	.0000
214621.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13561556 06 1	-.5664	.00000000 00 0	.0000
214631.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13557982 06 1	-.8242	.00000000 00 0	.0000
214641.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13554404 06 1	-1.0371	.00000000 00 0	.0000
214651.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13550821 06 1	.7910	.00000000 00 0	.0000
214701.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13547234 06 1	.6543	.00000000 00 0	.0000
214711.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13543645 06 1	.5469	.00000000 00 0	.0000
214721.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13540053 06 1	-.5313	.00000000 00 0	.0000
214731.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13536458 06 1	.4160	.00000000 00 0	.0000
214741.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13532862 06 1	-.6191	.00000000 00 0	.0000
214751.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13529264 06 0	9.3613	.00000000 00 0	.0000
214801.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13525664 06 1	.3555	.00000000 00 0	.0000
214811.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13522064 06 1	.3594	.00000000 00 0	.0000
214821.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13518463 06 1	.3652	.00000000 00 0	.0000
214831.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13514862 06 1	-.6230	.00000000 00 0	.0000

JETMTS ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
214841.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13511261 06 1	-.6133	.00000000 00 0	.0000
214851.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13507660 06 0	-6.6055	.00000000 00 0	.0000
214901.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13504061 06 1	-.6074	.00000000 00 0	.0000
214911.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13500462 06 1	.3828	.00000000 00 0	.0000
214921.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13496864 06 1	.3594	.00000000 00 0	.0000
214931.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13493268 06 1	1.3223	.00000000 00 0	.0000
214941.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13489673 06 1	1.2676	.00000000 00 0	.0000
214951.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13486081 06 1	1.1914	.00000000 00 0	.0000
215001.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13482490 06 1	.0957	.00000000 00 0	.0000
215011.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13478902 06 1	-.0254	.00000000 00 0	.0000
215021.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13475318 06 1	-.1758	.00000000 00 0	.0000
215031.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13471735 06 1	-.3516	.00000000 00 0	.0000
215041.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13468156 06 1	.4395	.00000000 00 0	.0000
215051.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13464580 06 1	.1992	.00000000 00 0	.0000
215101.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13461008 06 1	-.0781	.00000000 00 0	.0000
215111.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13457439 06 1	-.3926	.00000000 00 0	.0000
215131.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13450314 06 1	.8633	.00000000 00 0	.0000
215141.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13446757 06 1	.4277	.00000000 00 0	.0000
215151.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13443205 06 1	-.0527	.00000000 00 0	.0000
215201.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13439658 06 1	.4238	.00000000 00 0	.0000
215211.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13436115 06 1	.8535	.00000000 00 0	.0000
215221.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13432577 06 1	-.7656	.00000000 00 0	.0000
215231.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13429043 06 1	.5645	.00000000 00 0	.0000
215241.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13425516 06 1	-1.1563	.00000000 00 0	.0000
215251.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13421993 06 1	-.9297	.00000000 00 0	.0000
215301.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13418476 06 1	-.7559	.00000000 00 0	.0000
215311.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13414964 06 1	.3613	.00000000 00 0	.0000
215321.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13411457 06 1	-.5762	.00000000 00 0	.0000
215331.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13407957 06 1	.4297	.00000000 00 0	.0000
215341.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13404462 06 1	-.6250	.00000000 00 0	.0000
215351.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13400974 06 1	.2617	.00000000 00 0	.0000
215401.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13397491 06 1	1.0898	.00000000 00 0	.0000
215411.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13394015 06 1	.8535	.00000000 00 0	.0000
215421.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13390544 06 1	.5566	.00000000 00 0	.0000
215431.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13387080 06 1	1.1953	.00000000 00 0	.0000
215441.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13383623 06 1	-.2285	.00000000 00 0	.0000
215451.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13380172 06 1	.2832	.00000000 00 0	.0000
215501.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13376727 06 1	-.2734	.00000000 00 0	.0000
215511.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13373289 06 1	-.8945	.00000000 00 0	.0000
215521.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13369858 06 1	.4160	.00000000 00 0	.0000
215531.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13366434 06 1	-.3398	.00000000 00 0	.0000
215541.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13363017 06 1	.8320	.00000000 00 0	.0000
215551.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13359606 06 1	-.0645	.00000000 00 0	.0000
215601.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13356203 06 1	-1.0273	.00000000 00 0	.0000
215611.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13352806 06 1	-.0645	.00000000 00 0	.0000
215621.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13349417 06 1	-1.1719	.00000000 00 0	.0000
215631.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13346035 06 1	.6504	.00000000 00 0	.0000
215641.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13342660 06 1	-.5996	.00000000 00 0	.0000
215651.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13339292 06 1	1.0762	.00000000 00 0	.0000
215701.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13335932 06 1	.6777	.00000000 00 0	.0000
215711.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13332579 06 1	.2090	.00000000 00 0	.0000
215721.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13329233 06 1	.6641	.00000000 00 0	.0000
215731.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13325895 06 1	.0449	.00000000 00 0	.0000
215741.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13322565 06 1	.3496	.00000000 00 0	.0000
215751.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13319242 06 1	.5801	.00000000 00 0	.0000
215801.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13315926 06 1	-.2637	.00000000 00 0	.0000

JETMTS ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
215811.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13312618 06 1	.8145	.00000000 00 0	.0000
215821.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13309318 06 1	-.1816	.00000000 00 0	.0000
215831.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13306025 06 1	.7441	.00000000 00 0	.0000
215841.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13302740 06 1	.5938	.00000000 00 0	.0000
215851.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13299463 06 1	.3672	.00000000 00 0	.0000
215901.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13296194 06 1	-.9395	.00000000 00 0	.0000
215911.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13292932 06 1	-.3223	.00000000 00 0	.0000
215921.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13289678 06 1	-.7832	.00000000 00 0	.0000
215931.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13286432 06 1	.6777	.00000000 00 0	.0000
215941.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13283194 06 1	.0625	.00000000 00 0	.0000
215951.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13279963 06 1	-.6348	.00000000 00 0	.0000
220001.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13276741 06 1	.5918	.00000000 00 0	.0000
220011.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13273526 06 1	-.2598	.00000000 00 0	.0000
220021.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13270319 06 1	-.1914	.00000000 00 0	.0000
220031.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13267120 06 1	-.2012	.00000000 00 0	.0000
220041.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13263929 06 1	-1.2930	.00000000 00 0	.0000
220051.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13260746 06 1	.5391	.00000000 00 0	.0000
220101.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13257571 06 1	.2891	.00000000 00 0	.0000
220111.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13254404 06 1	-.0391	.00000000 00 0	.0000
220121.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13251244 06 1	-.4434	.00000000 00 0	.0000
220131.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13248093 06 1	.0703	.00000000 00 0	.0000
220141.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13244950 06 1	.5020	.00000000 00 0	.0000
220151.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13241814 06 1	.8574	.00000000 00 0	.0000
220201.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13238687 06 1	1.1309	.00000000 00 0	.0000
220211.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13235567 06 1	.3262	.00000000 00 0	.0000
220221.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13232456 06 1	.4414	.00000000 00 0	.0000
220231.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13229352 06 1	-.5234	.00000000 00 0	.0000
220241.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13226257 06 1	.4316	.00000000 00 0	.0000
220251.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13223169 06 1	-.6934	.00000000 00 0	.0000
220301.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13220089 06 1	-.8965	.00000000 00 0	.0000
220311.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13217018 06 1	-1.1797	.00000000 00 0	.0000
220321.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13213954 06 1	-.5430	.00000000 00 0	.0000
220331.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13210898 06 1	-.9863	.00000000 00 0	.0000
220341.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13207851 06 1	.4922	.00000000 00 0	.0000
220351.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13204811 06 1	.8906	.00000000 00 0	.0000
220401.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13201779 06 1	1.2109	.00000000 00 0	.0000
220501.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13183754 06 1	.4590	.00000000 00 0	.0000
220511.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13180777 06 1	-.7754	.00000000 00 0	.0000
220521.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13177809 06 1	-.0898	.00000000 00 0	.0000
220531.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13174848 06 1	.5176	.00000000 00 0	.0000
220541.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13171895 06 1	.0469	.00000000 00 0	.0000
220551.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13168950 06 1	.4980	.00000000 00 0	.0000
220601.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13166013 06 1	-.1289	.00000000 00 0	.0000
220611.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13163083 06 1	-.8359	.00000000 00 0	.0000
220621.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13160162 06 1	-.6191	.00000000 00 0	.0000
220631.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13157248 06 1	.5195	.00000000 00 0	.0000
220641.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13154342 06 1	-.4199	.00000000 00 0	.0000
220651.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13151444 06 1	-.4375	.00000000 00 0	.0000
220701.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13148553 06 1	-.5332	.00000000 00 0	.0000
220711.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13145670 06 1	1.2949	.00000000 00 0	.0000
220721.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13142795 06 1	.0469	.00000000 00 0	.0000
220731.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13139928 06 1	-.2793	.00000000 00 0	.0000
220741.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13137068 06 1	-.6836	.00000000 00 0	.0000
220751.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13134216 06 1	-.1621	.00000000 00 0	.0000
220801.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13131372 06 1	.2813	.00000000 00 0	.0000
220811.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13128535 06 1	-.3516	.00000000 00 0	.0000

JETMTS ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
220821.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13125706 06 1	-.0605	.00000000 00 0	.0000
220831.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13122885 06 1	.1543	.00000000 00 0	.0000
220841.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13120071 06 1	.2930	.00000000 00 0	.0000
220851.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13117264 06 1	.3555	.00000000 00 0	.0000
220901.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13114466 06 1	-.6563	.00000000 00 0	.0000
220911.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13111674 06 1	-.7422	.00000000 00 0	.0000
220921.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13108891 06 1	.0938	.00000000 00 0	.0000
220931.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13106114 06 1	.8564	.00000000 00 0	.0000
220941.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13103345 06 1	.5449	.00000000 00 0	.0000
220951.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13100584 06 1	.1582	.00000000 00 0	.0000
221001.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13097830 06 1	-.3037	.00000000 00 0	.0000
221011.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13095084 06 1	.1611	.00000000 00 0	.0000
221021.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13092345 06 1	-.4492	.00000000 00 0	.0000
221031.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13089613 06 1	-.1328	.00000000 00 0	.0000
221041.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13086889 06 1	-.8896	.00000000 00 0	.0000
221051.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13084172 06 1	.2793	.00000000 00 0	.0000
221101.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13081462 06 1	-.6250	.00000000 00 0	.0000
221111.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13078760 06 1	.3994	.00000000 00 0	.0000
221121.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13076065 06 1	-.6504	.00000000 00 0	.0000
221131.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13073377 06 1	-.7734	.00000000 00 0	.0000
221141.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13070697 06 1	1.0322	.00000000 00 0	.0000
221151.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13068023 06 1	-.2354	.00000000 00 0	.0000
221201.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13065357 06 1	.4258	.00000000 00 0	.0000
221211.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13062698 06 1	.0146	.00000000 00 0	.0000
221221.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13060047 06 1	.5332	.00000000 00 0	.0000
221231.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13057402 06 1	-.0205	.00000000 00 0	.0000
221241.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13054764 06 1	-.6455	.00000000 00 0	.0000
221251.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13052134 06 1	-.3418	.00000000 00 0	.0000
221301.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13049511 06 1	.8916	.00000000 00 0	.0000
221311.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13046895 06 1	-.9463	.00000000 00 0	.0000
221501.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13018575 06 1	-.7520	.00000000 00 0	.0000
221511.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13016042 06 1	-.4199	.00000000 00 0	.0000
221521.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13013515 06 1	.8447	.00000000 00 0	.0000
221531.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13010996 06 1	.0420	.00000000 00 0	.0000
221541.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13008483 06 1	-.8281	.00000000 00 0	.0000
221551.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13005976 06 1	.2354	.00000000 00 0	.0000
221601.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13003477 06 1	.2314	.00000000 00 0	.0000
221611.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.13000984 06 1	1.1602	.00000000 00 0	.0000
221621.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12998498 06 1	1.0234	.00000000 00 0	.0000
221631.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12996018 06 1	-.1797	.00000000 00 0	.0000
221641.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12993545 06 1	.5498	.00000000 00 0	.0000
221651.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12991078 06 1	-.7842	.00000000 00 0	.0000
221701.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12988618 06 1	.8154	.00000000 00 0	.0000
221711.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12986165 06 1	.3486	.00000000 00 0	.0000
221721.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12983718 06 1	.8174	.00000000 00 0	.0000
221731.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12981278 06 1	-.7793	.00000000 00 0	.0000
221741.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12978844 06 1	-.4404	.00000000 00 0	.0000
221751.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12976416 06 1	.8350	.00000000 00 0	.0000
221801.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12973996 06 1	.0449	.00000000 00 0	.0000
221811.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12971581 06 1	.1914	.00000000 00 0	.0000
221821.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12969173 06 1	-.7266	.00000000 00 0	.0000
221831.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12966771 06 1	.2930	.00000000 00 0	.0000
221841.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12964375 06 1	-.7529	.00000000 00 0	.0000
221851.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12961986 06 1	.1396	.00000000 00 0	.0000
221901.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12959603 06 1	-1.0313	.00000000 00 0	.0000
221911.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12957226 06 1	-.2656	.00000000 00 0	.0000

JETMTS ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
221921.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12954856 06 1	.4385	.00000000 00 0	.0000
221931.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12952492 06 1	-.9199	.00000000 00 0	.0000
221941.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12950134 06 1	.6592	.00000000 00 0	.0000
221951.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12947782 06 1	.1768	.00000000 00 0	.0000
222001.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12945437 06 1	-.3682	.00000000 00 0	.0000
222011.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12943097 06 1	.0264	.00000000 00 0	.0000
222021.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12940764 06 1	.3584	.00000000 00 0	.0000
222031.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12938437 06 1	-.3691	.00000000 00 0	.0000
222041.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12936116 06 1	-1.1592	.00000000 00 0	.0000
222051.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12933801 06 1	-.0088	.00000000 00 0	.0000
222101.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12931492 06 1	-.9189	.00000000 00 0	.0000
222111.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12929189 06 1	-.8887	.00000000 00 0	.0000
222121.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12926892 06 1	-.9189	.00000000 00 0	.0000
222131.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12924601 06 1	-1.0098	.00000000 00 0	.0000
222141.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12922316 06 1	-.1602	.00000000 00 0	.0000
222151.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12920037 06 1	.6309	.00000000 00 0	.0000
222201.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12917764 06 1	.3633	.00000000 00 0	.0000
222211.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12915496 06 1	-.9648	.00000000 00 0	.0000
222221.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12913235 06 1	-.3506	.00000000 00 0	.0000
222231.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12910979 06 1	.2051	.00000000 00 0	.0000
222241.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12908730 06 1	-.2988	.00000000 00 0	.0000
222251.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12906486 06 1	-.8613	.00000000 00 0	.0000
222301.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12904248 06 1	.5205	.00000000 00 0	.0000
222311.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12902016 06 1	.8438	.00000000 00 0	.0000
222321.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12899789 06 1	1.1094	.00000000 00 0	.0000
222331.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12897568 06 1	.3174	.00000000 00 0	.0000
222341.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12895353 06 1	.4678	.00000000 00 0	.0000
222351.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12893144 06 1	-.4385	.00000000 00 0	.0000
222401.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12890940 06 1	-.4004	.00000000 00 0	.0000
222411.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12888742 06 1	.5801	.00000000 00 0	.0000
222421.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12886549 06 1	.5049	.00000000 00 0	.0000
222431.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12884363 06 1	-.6270	.00000000 00 0	.0000
222441.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12882181 06 1	.1846	.00000000 00 0	.0000
222451.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12880006 06 1	-1.0596	.00000000 00 0	.0000
222501.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12877836 06 1	.6416	.00000000 00 0	.0000
222511.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12875671 06 1	.2871	.00000000 00 0	.0000
222521.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12873512 06 1	-.1230	.00000000 00 0	.0000
222531.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12871359 06 1	-.5859	.00000000 00 0	.0000
222541.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12869211 06 1	-1.1055	.00000000 00 0	.0000
222551.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12867068 06 1	.3203	.00000000 00 0	.0000
222601.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12864931 06 1	-.3076	.00000000 00 0	.0000
222611.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12862799 06 1	-.9902	.00000000 00 0	.0000
222621.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12860673 06 1	.2734	.00000000 00 0	.0000
222631.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12858552 06 1	.4824	.00000000 00 0	.0000
222641.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12856436 06 1	.6406	.00000000 00 0	.0000
222651.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12854326 06 1	.7422	.00000000 00 0	.0000
222701.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12852221 06 1	.7920	.00000000 00 0	.0000
222711.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12850121 06 1	-.2100	.00000000 00 0	.0000
222721.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12848027 06 1	.7334	.00000000 00 0	.0000
222731.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12845937 06 1	.6240	.00000000 00 0	.0000
222741.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12843854 06 1	-.5371	.00000000 00 0	.0000
222751.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12841775 06 1	.2490	.00000000 00 0	.0000
222801.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12839702 06 1	-1.0166	.00000000 00 0	.0000
222811.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12837633 06 1	-.3340	.00000000 00 0	.0000
222821.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12835570 06 1	-.7041	.00000000 00 0	.0000
222831.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12833512 06 1	-1.1240	.00000000 00 0	.0000

JETMTS ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
222841.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12831460 06 1	.4023	.00000000 00 0	.0000
222851.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12829412 06 1	-.1201	.00000000 00 0	.0000
222901.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12827369 06 1	-.6953	.00000000 00 0	.0000
222911.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12825332 06 1	-.3193	.00000000 00 0	.0000
222921.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12823299 06 1	1.0039	.00000000 00 0	.0000
222931.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12821272 06 1	.2764	.00000000 00 0	.0000
222941.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12819250 06 1	-.5000	.00000000 00 0	.0000
222951.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12817233 06 1	.6729	.00000000 00 0	.0000
223001.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12815220 06 1	-.2031	.00000000 00 0	.0000
223011.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12813213 06 1	-.1299	.00000000 00 0	.0000
223021.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12811210 06 1	-1.1055	.00000000 00 0	.0000
223031.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12809213 06 1	-.1318	.00000000 00 0	.0000
223041.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12807221 06 1	.7939	.00000000 00 0	.0000
223051.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12805233 06 1	.6689	.00000000 00 0	.0000
223101.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12803250 06 1	.4980	.00000000 00 0	.0000
223111.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12801272 06 1	.2754	.00000000 00 0	.0000
223121.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12799299 06 1	1.0068	.00000000 00 0	.0000
223131.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12797331 06 1	.6875	.00000000 00 0	.0000
223141.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12795368 06 1	-.6787	.00000000 00 0	.0000
223151.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12793409 06 1	-.0928	.00000000 00 0	.0000
223201.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12791456 06 1	-.5557	.00000000 00 0	.0000
223211.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12789506 06 1	-.0654	.00000000 00 0	.0000
223221.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12787562 06 1	.3770	.00000000 00 0	.0000
223231.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12785623 06 1	-1.2275	.00000000 00 0	.0000
223241.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12783688 06 1	1.1211	.00000000 00 0	.0000
223251.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12781758 06 1	1.4219	.00000000 00 0	.0000
223301.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12779832 06 1	.6758	.00000000 00 0	.0000
223311.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12777912 06 1	-1.1172	.00000000 00 0	.0000
223321.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12775996 06 1	1.0439	.00000000 00 0	.0000
223331.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12774084 06 1	.1582	.00000000 00 0	.0000
223341.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12772177 06 1	1.2266	.00000000 00 0	.0000
223351.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12770275 06 1	-.7510	.00000000 00 0	.0000
223401.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12768377 06 1	.2256	.00000000 00 0	.0000
223411.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12766484 06 1	-.8438	.00000000 00 0	.0000
223421.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12764596 06 1	.0410	.00000000 00 0	.0000
223431.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12762712 06 1	-.1191	.00000000 00 0	.0000
223441.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12760832 06 1	.6758	.00000000 00 0	.0000
223451.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12758957 06 1	.4258	.00000000 00 0	.0000
223501.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12757087 06 1	.1309	.00000000 00 0	.0000
223511.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12755221 06 1	-.2100	.00000000 00 0	.0000
223521.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12753359 06 1	.4053	.00000000 00 0	.0000
223531.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12751502 06 1	-.0244	.00000000 00 0	.0000
223541.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12749650 06 1	-.4971	.00000000 00 0	.0000
223551.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12747802 06 1	-1.0156	.00000000 00 0	.0000
223601.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12745958 06 1	.4229	.00000000 00 0	.0000
223611.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12744118 06 1	-.1826	.00000000 00 0	.0000
223621.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12742283 06 1	.1680	.00000000 00 0	.0000
223631.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12740452 06 1	-.5234	.00000000 00 0	.0000
223641.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12738626 06 1	.7402	.00000000 00 0	.0000
223651.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12736804 06 1	-1.0391	.00000000 00 0	.0000
223701.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12734986 06 1	-.8613	.00000000 00 0	.0000
223711.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12733173 06 1	.2734	.00000000 00 0	.0000
223721.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12731363 06 1	-.6348	.00000000 00 0	.0000
223731.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12729558 06 1	-.5850	.00000000 00 0	.0000
223741.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12727758 06 1	-.5771	.00000000 00 0	.0000
223751.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12725961 06 1	.3867	.00000000 00 0	.0000

JETMTS ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
223801.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12724169 06 1	-.6914	.00000000 00 0	.0000
223811.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12722381 06 1	-.8096	.00000000 00 0	.0000
223821.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12720597 06 1	-.9727	.00000000 00 0	.0000
223831.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12718817 06 1	.8252	.00000000 00 0	.0000
223841.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12717042 06 1	.5801	.00000000 00 0	.0000
223851.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12715271 06 1	.2930	.00000000 00 0	.0000
223901.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12713503 06 1	-1.0342	.00000000 00 0	.0000
223911.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12711740 06 1	-.4033	.00000000 00 0	.0000
223921.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12709981 06 1	.1875	.00000000 00 0	.0000
223931.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12708226 06 1	-.2637	.00000000 00 0	.0000
223941.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12706475 06 1	1.2451	.00000000 00 0	.0000
223951.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12704729 06 1	-.2871	.00000000 00 0	.0000
224001.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12702986 06 1	.1406	.00000000 00 0	.0000
224011.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12701247 06 1	-.4727	.00000000 00 0	.0000
224021.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12699513 06 1	.8740	.00000000 00 0	.0000
224031.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12697782 06 1	.1807	.00000000 00 0	.0000
224041.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12696055 06 1	-.5527	.00000000 00 0	.0000
224051.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12694333 06 1	-.3262	.00000000 00 0	.0000
224101.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12692614 06 1	-.1377	.00000000 00 0	.0000
224111.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12690899 06 1	-.9902	.00000000 00 0	.0000
224121.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12689188 06 1	.1191	.00000000 00 0	.0000
224131.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12687481 06 1	.1885	.00000000 00 0	.0000
224141.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12685778 06 1	-.7822	.00000000 00 0	.0000
224151.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12684079 06 1	-.7910	.00000000 00 0	.0000
224201.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12682384 06 1	-.8379	.00000000 00 0	.0000
224211.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12680692 06 1	1.0752	.00000000 00 0	.0000
224221.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12679005 06 1	.9502	.00000000 00 0	.0000
224231.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12677321 06 1	-.2139	.00000000 00 0	.0000
224241.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12675641 06 1	-.4160	.00000000 00 0	.0000
224251.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12673965 06 1	.3447	.00000000 00 0	.0000
224301.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12672293 06 1	.0664	.00000000 00 0	.0000
224311.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12670625 06 1	-.2490	.00000000 00 0	.0000
224321.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12668960 06 1	.3965	.00000000 00 0	.0000
224331.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12667299 06 1	-.9941	.00000000 00 0	.0000
224341.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12665642 06 1	.5762	.00000000 00 0	.0000
224351.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12663989 06 1	1.1094	.00000000 00 0	.0000
224401.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12662339 06 1	-.3945	.00000000 00 0	.0000
224411.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12660694 06 1	-.9355	.00000000 00 0	.0000
224421.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12659051 06 1	.4863	.00000000 00 0	.0000
224431.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12657413 06 1	-.1289	.00000000 00 0	.0000
224441.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12655778 06 1	.2188	.00000000 00 0	.0000
224451.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12654147 06 1	-.4697	.00000000 00 0	.0000
224501.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12652519 06 1	-1.1934	.00000000 00 0	.0000
224511.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12650896 06 1	.0439	.00000000 00 0	.0000
224521.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12649275 06 1	-.7529	.00000000 00 0	.0000
224531.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12647659 06 1	.4121	.00000000 00 0	.0000
224541.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12646046 06 1	-.4580	.00000000 00 0	.0000
224551.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12644436 06 1	-.3643	.00000000 00 0	.0000
224601.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12642831 06 1	-.3066	.00000000 00 0	.0000
224611.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12641228 06 1	-.2842	.00000000 00 0	.0000
224621.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12639630 06 1	-1.2969	.00000000 00 0	.0000
224631.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12638035 06 1	-.3467	.00000000 00 0	.0000
224641.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12636443 06 1	-.4316	.00000000 00 0	.0000
224651.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12634855 06 1	-.5508	.00000000 00 0	.0000
224701.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12633270 06 1	-.7051	.00000000 00 0	.0000
224711.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12631689 06 1	-.8945	.00000000 00 0	.0000

JETMTS ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
224721.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12630112 06 1	-1.1191	.00000000 00 0	.0000
224731.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12628538 06 1	-.3789	.00000000 00 0	.0000
224741.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12626967 06 1	.3271	.00000000 00 0	.0000
224751.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12625400 06 1	-.0020	.00000000 00 0	.0000
224801.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12623836 06 1	.6348	.00000000 00 0	.0000
224811.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12622276 06 1	.2373	.00000000 00 0	.0000
224821.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12620719 06 1	-1.1943	.00000000 00 0	.0000
224831.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12619166 06 1	-.6611	.00000000 00 0	.0000
224841.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12617616 06 1	-1.1602	.00000000 00 0	.0000
224851.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12616069 06 1	1.3047	.00000000 00 0	.0000
224901.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12614526 06 1	.7373	.00000000 00 0	.0000
224911.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12612986 06 1	.1367	.00000000 00 0	.0000
224921.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12611450 06 1	.5020	.00000000 00 0	.0000
224931.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12609917 06 1	-.1670	.00000000 00 0	.0000
224941.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12608387 06 1	.1318	.00000000 00 0	.0000
224951.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12606860 06 1	.3965	.00000000 00 0	.0000
225001.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12605337 06 1	.6289	.00000000 00 0	.0000
225011.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12603817 06 1	.8262	.00000000 00 0	.0000
225021.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12602301 06 1	.9922	.00000000 00 0	.0000
225031.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12600787 06 1	-.8740	.00000000 00 0	.0000
225041.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12599277 06 1	.2266	.00000000 00 0	.0000
225051.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12597771 06 1	.2939	.00000000 00 0	.0000
225101.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12596267 06 1	1.3301	.00000000 00 0	.0000
225111.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12594767 06 1	1.3330	.00000000 00 0	.0000
225121.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12593270 06 1	1.3027	.00000000 00 0	.0000
225131.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12591776 06 1	-.7588	.00000000 00 0	.0000
225141.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12590285 06 1	-.8525	.00000000 00 0	.0000
225151.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12588798 06 1	.0215	.00000000 00 0	.0000
225201.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12587314 06 1	-.1357	.00000000 00 0	.0000
225211.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12585832 06 1	-.3252	.00000000 00 0	.0000
225221.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12584355 06 1	-.5469	.00000000 00 0	.0000
225231.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12582880 06 1	.2012	.00000000 00 0	.0000
225241.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12581408 06 1	-.0830	.00000000 00 0	.0000
225251.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12579940 06 1	-.3994	.00000000 00 0	.0000
225301.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12578475 06 1	-.7461	.00000000 00 0	.0000
225311.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12577012 06 1	-.1240	.00000000 00 0	.0000
225321.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12575553 06 1	-.5342	.00000000 00 0	.0000
225331.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12574097 06 1	.0264	.00000000 00 0	.0000
225341.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12572644 06 1	.5547	.00000000 00 0	.0000
225401.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12569748 06 1	-.4795	.00000000 00 0	.0000
225411.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12568304 06 1	.9570	.00000000 00 0	.0000
225421.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12566863 06 1	.3643	.00000000 00 0	.0000
225431.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12565426 06 1	.7393	.00000000 00 0	.0000
225441.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12563991 06 1	.0859	.00000000 00 0	.0000
225451.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12562560 06 1	-.5996	.00000000 00 0	.0000
225501.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12561131 06 1	-1.3145	.00000000 00 0	.0000
225511.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12559706 06 1	-.0586	.00000000 00 0	.0000
225531.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12556864 06 1	.3613	.00000000 00 0	.0000
225541.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12555447 06 1	.5264	.00000000 00 0	.0000
225551.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12554034 06 1	-.3369	.00000000 00 0	.0000
225601.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12552623 06 1	-.2305	.00000000 00 0	.0000
225611.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12551215 06 1	-.1543	.00000000 00 0	.0000
225621.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12549811 06 1	-1.1064	.00000000 00 0	.0000
225631.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12548409 06 1	-.0879	.00000000 00 0	.0000
225641.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12547010 06 1	-1.0996	.00000000 00 0	.0000
225651.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12545614 06 1	.8604	.00000000 00 0	.0000

JETMTS ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
225701.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12544221 06 1	.7920	.00000000 00 0	.0000
225711.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12542831 06 1	-.3066	.00000000 00 0	.0000
225721.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12541443 06 1	-.4336	.00000000 00 0	.0000
225731.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12540059 06 1	-.5879	.00000000 00 0	.0000
225741.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12538677 06 1	-.7734	.00000000 00 0	.0000
225751.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12537298 06 1	.0137	.00000000 00 0	.0000
225801.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12535923 06 1	.7725	.00000000 00 0	.0000
225811.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12534550 06 1	.5029	.00000000 00 0	.0000
225821.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12533180 06 1	.2041	.00000000 00 0	.0000
225831.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12531812 06 1	-.1211	.00000000 00 0	.0000
225841.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12530448 06 1	.5244	.00000000 00 0	.0000
225851.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12529086 06 1	.1416	.00000000 00 0	.0000
225901.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12527727 06 1	-.2695	.00000000 00 0	.0000
225911.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12526371 06 1	.2910	.00000000 00 0	.0000
225921.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12525017 06 1	-.1738	.00000000 00 0	.0000
225931.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12523667 06 1	.3320	.00000000 00 0	.0000
225941.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12522319 06 1	.8096	.00000000 00 0	.0000
225951.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12520974 06 1	.2607	.00000000 00 0	.0000
230001.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12519632 06 1	.6846	.00000000 00 0	.0000
230011.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12518292 06 1	.0801	.00000000 00 0	.0000
230021.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12516955 06 1	-.5508	.00000000 00 0	.0000
230031.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12515621 06 1	.7900	.00000000 00 0	.0000
230041.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12514289 06 1	.1055	.00000000 00 0	.0000
230051.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12512961 06 1	-.6074	.00000000 00 0	.0000
230101.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12511635 06 1	.6523	.00000000 00 0	.0000
230111.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12510311 06 1	-.1143	.00000000 00 0	.0000
230121.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12508991 06 1	.0918	.00000000 00 0	.0000
230131.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12507673 06 1	-.7285	.00000000 00 0	.0000
230141.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12506357 06 1	-.5752	.00000000 00 0	.0000
230151.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12505045 06 1	.5518	.00000000 00 0	.0000
230201.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12503735 06 1	-.3486	.00000000 00 0	.0000
230211.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12502427 06 1	-.2744	.00000000 00 0	.0000
230221.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12501123 06 1	-.2266	.00000000 00 0	.0000
230231.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12499821 06 1	.7939	.00000000 00 0	.0000
230241.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12498521 06 1	-.2109	.00000000 00 0	.0000
230251.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12497224 06 1	.7578	.00000000 00 0	.0000
230301.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12495930 06 1	-.2998	.00000000 00 0	.0000
230311.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12494638 06 1	.6162	.00000000 00 0	.0000
230321.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12493349 06 1	-.4922	.00000000 00 0	.0000
230331.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12492063 06 1	-.6279	.00000000 00 0	.0000
230341.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12490779 06 1	.2129	.00000000 00 0	.0000
230351.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12489497 06 1	.0264	.00000000 00 0	.0000
230401.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12488219 06 1	.8145	.00000000 00 0	.0000
230411.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12486942 06 1	.5771	.00000000 00 0	.0000
230421.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12485669 06 1	.3135	.00000000 00 0	.0000
230431.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12484397 06 1	.0264	.00000000 00 0	.0000
230441.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12483129 06 1	-.2871	.00000000 00 0	.0000
230451.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12481862 06 1	-.6260	.00000000 00 0	.0000
234011.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12260567 06 1	1.3271	.00000000 00 0	.0000
234021.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12259708 06 1	-.0791	.00000000 00 0	.0000
234031.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12258850 06 1	1.4990	.00000000 00 0	.0000
234041.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12257994 06 1	.0625	.00000000 00 0	.0000
234051.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12257139 06 1	-.3867	.00000000 00 0	.0000
234101.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12256285 06 1	.1484	.00000000 00 0	.0000
234111.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12255433 06 1	-.3301	.00000000 00 0	.0000
234121.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12254582 06 1	-.8242	.00000000 00 0	.0000

JETMTS ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
234131.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12253733 06 1	.6689	.00000000 00 0	.0000
234141.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12252885 06 1	.1475	.00000000 00 0	.0000
234151.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12252039 06 1	-.3877	.00000000 00 0	.0000
234201.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12251194 06 1	.0625	.00000000 00 0	.0000
234211.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12250350 06 1	-.5020	.00000000 00 0	.0000
234221.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12249508 06 1	.9199	.00000000 00 0	.0000
234231.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12248667 06 1	1.3281	.00000000 00 0	.0000
234241.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12247828 06 1	-.2773	.00000000 00 0	.0000
234251.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12246990 06 1	-.8975	.00000000 00 0	.0000
234301.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12246153 06 1	.4688	.00000000 00 0	.0000
234311.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12245318 06 1	-1.1787	.00000000 00 0	.0000
234321.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12244484 06 1	.1592	.00000000 00 0	.0000
234331.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12243652 06 1	.4834	.00000000 00 0	.0000
234341.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12242820 06 1	-1.2051	.00000000 00 0	.0000
234351.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12241991 06 1	.0918	.00000000 00 0	.0000
234401.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12241162 06 1	.3750	.00000000 00 0	.0000
234411.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12240335 06 1	.6445	.00000000 00 0	.0000
234421.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12239510 06 1	-1.0996	.00000000 00 0	.0000
234431.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12238686 06 1	.1426	.00000000 00 0	.0000
234441.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12237863 06 1	.3711	.00000000 00 0	.0000
234451.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12237041 06 1	.5869	.00000000 00 0	.0000
234501.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12236221 06 1	.7881	.00000000 00 0	.0000
234511.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12235402 06 1	-.0234	.00000000 00 0	.0000
234521.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12234585 06 1	-.8496	.00000000 00 0	.0000
234531.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12233769 06 1	.3115	.00000000 00 0	.0000
234541.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12232954 06 1	.4590	.00000000 00 0	.0000
234551.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12232141 06 1	-.4072	.00000000 00 0	.0000
234601.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12231328 06 1	.7139	.00000000 00 0	.0000
234611.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12230518 06 1	-.1787	.00000000 00 0	.0000
234621.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12229708 06 1	-.0850	.00000000 00 0	.0000
234631.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12228900 06 1	-1.0029	.00000000 00 0	.0000
234641.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12228094 06 1	.0635	.00000000 00 0	.0000
234651.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12227288 06 1	-.8809	.00000000 00 0	.0000
234701.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12226484 06 1	-.8408	.00000000 00 0	.0000
234711.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12225681 06 1	.1865	.00000000 00 0	.0000
234721.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12224880 06 1	.2021	.00000000 00 0	.0000
234731.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12224080 06 1	.2041	.00000000 00 0	.0000
234741.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12223281 06 1	1.1934	.00000000 00 0	.0000
234751.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12222483 06 1	.1689	.00000000 00 0	.0000
234801.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12221687 06 1	1.1309	.00000000 00 0	.0000
234811.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12220892 06 1	.0811	.00000000 00 0	.0000
234821.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12220098 06 1	-.9824	.00000000 00 0	.0000
234831.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12219306 06 1	.9414	.00000000 00 0	.0000
234841.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12218515 06 1	-.1475	.00000000 00 0	.0000
234851.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12217725 06 1	-.2500	.00000000 00 0	.0000
234901.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12216936 06 1	.6348	.00000000 00 0	.0000
234911.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12216149 06 1	-.4922	.00000000 00 0	.0000
234921.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12215363 06 1	.3672	.00000000 00 0	.0000
234931.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12214579 06 1	.2139	.00000000 00 0	.0000
234941.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12213795 06 1	.0479	.00000000 00 0	.0000
234951.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12213013 06 1	-.1309	.00000000 00 0	.0000
235001.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12212232 06 1	-.3223	.00000000 00 0	.0000
235011.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12211453 06 1	-.5264	.00000000 00 0	.0000
235021.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12210674 06 1	.2568	.00000000 00 0	.0000
235031.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12209897 06 1	1.0273	.00000000 00 0	.0000
235041.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12209121 06 1	.7861	.00000000 00 0	.0000

JETMTS ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
235051.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12208347 06 1	.5313	.00000000 00 0	.0000
235101.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12207574 06 1	-.7354	.00000000 00 0	.0000
235111.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12206801 06 1	-.0146	.00000000 00 0	.0000
235121.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12206031 06 1	.6934	.00000000 00 0	.0000
235131.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12205261 06 1	-.6104	.00000000 00 0	.0000
235141.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12204493 06 1	-.9277	.00000000 00 0	.0000
235151.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12203726 06 1	-1.2559	.00000000 00 0	.0000
235201.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12202960 06 1	-.5977	.00000000 00 0	.0000
235211.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12202195 06 1	-.9512	.00000000 00 0	.0000
235221.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12201432 06 1	-.3174	.00000000 00 0	.0000
235231.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12200669 06 1	.3047	.00000000 00 0	.0000
235241.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12199908 06 1	.9141	.00000000 00 0	.0000
235251.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12199149 06 1	-.4883	.00000000 00 0	.0000
235301.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12198390 06 1	.0967	.00000000 00 0	.0000
235311.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12197633 06 1	-.3311	.00000000 00 0	.0000
235321.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12196877 06 1	.2305	.00000000 00 0	.0000
235331.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12196122 06 1	.7783	.00000000 00 0	.0000
235341.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12195368 06 1	-.6846	.00000000 00 0	.0000
235351.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12194616 06 1	-1.1602	.00000000 00 0	.0000
235401.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12193865 06 1	-.6475	.00000000 00 0	.0000
235411.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12193115 06 1	-.1475	.00000000 00 0	.0000
235421.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12192366 06 1	-.6592	.00000000 00 0	.0000
235431.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12191618 06 1	-.1826	.00000000 00 0	.0000
235441.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12190872 06 1	.2832	.00000000 00 0	.0000
235451.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12190126 06 1	-.2656	.00000000 00 0	.0000
235501.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12189382 06 1	.1758	.00000000 00 0	.0000
235511.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12188639 06 1	-1.3945	.00000000 00 0	.0000
235521.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12187898 06 1	1.0225	.00000000 00 0	.0000
235531.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12187157 06 1	.4268	.00000000 00 0	.0000
235541.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12186418 06 1	.8203	.00000000 00 0	.0000
235551.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12185680 06 1	.2031	.00000000 00 0	.0000
235601.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12184943 06 1	.5732	.00000000 00 0	.0000
235611.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12184207 06 1	-1.0693	.00000000 00 0	.0000
235621.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12183472 06 1	.2783	.00000000 00 0	.0000
235631.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12182739 06 1	-1.3877	.00000000 00 0	.0000
235641.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12182006 06 1	.9355	.00000000 00 0	.0000
235711.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12179816 06 1	.8369	.00000000 00 0	.0000
235721.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12179088 06 1	.1143	.00000000 00 0	.0000
235731.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12178362 06 1	.3799	.00000000 00 0	.0000
235741.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12177637 06 1	-.3672	.00000000 00 0	.0000
235751.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12176912 06 1	-.1240	.00000000 00 0	.0000
235801.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12176189 06 1	1.1074	.00000000 00 0	.0000
235811.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12175467 06 1	.3271	.00000000 00 0	.0000
235821.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12174746 06 1	.5352	.00000000 00 0	.0000
235831.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12174027 06 1	-.2676	.00000000 00 0	.0000
235841.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12173308 06 1	.9180	.00000000 00 0	.0000
235851.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12172591 06 1	.0928	.00000000 00 0	.0000
235901.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12171874 06 1	.2559	.00000000 00 0	.0000
235911.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12171159 06 1	-.5918	.00000000 00 0	.0000
235921.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12170445 06 1	.5488	.00000000 00 0	.0000
235931.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12169732 06 1	.6787	.00000000 00 0	.0000
235941.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12169020 06 1	.7959	.00000000 00 0	.0000
235951.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12168310 06 1	-1.0967	.00000000 00 0	.0000
000001.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12167600 06 1	-.0020	.00000000 00 0	.0000
000011.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12166892 06 1	.0830	.00000000 00 0	.0000
000021.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12166184 06 1	-.8438	.00000000 00 0	.0000

JETMTS ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
000031.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12165478 06 1	.2188	.00000000 00 0	.0000
000041.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12164773 06 1	.2705	.00000000 00 0	.0000
000051.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12164069 06 1	.3105	.00000000 00 0	.0000
000101.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12163366 06 1	.3398	.00000000 00 0	.0000
000111.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12162664 06 1	-.6416	.00000000 00 0	.0000
000121.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12161963 06 1	.3662	.00000000 00 0	.0000
000131.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12161264 06 1	.3623	.00000000 00 0	.0000
000141.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12160565 06 1	.3477	.00000000 00 0	.0000
000151.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12159868 06 1	.3232	.00000000 00 0	.0000
000201.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12159171 06 1	-.7129	.00000000 00 0	.0000
000211.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12158476 06 1	-.7607	.00000000 00 0	.0000
000221.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12157782 06 1	-.8184	.00000000 00 0	.0000
000231.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12157089 06 1	.1133	.00000000 00 0	.0000
000241.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12156397 06 1	.0332	.00000000 00 0	.0000
000251.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12155706 06 1	-.0566	.00000000 00 0	.0000
000301.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12155016 06 1	-.1582	.00000000 00 0	.0000
000311.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12154327 06 1	-1.2695	.00000000 00 0	.0000
000321.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12153639 06 1	.6084	.00000000 00 0	.0000
000331.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12152952 06 1	.4746	.00000000 00 0	.0000
000341.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12152267 06 1	-.6699	.00000000 00 0	.0000
000351.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12151582 06 1	-.8242	.00000000 00 0	.0000
000401.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12150899 06 1	.0117	.00000000 00 0	.0000
000411.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12150216 06 1	.8350	.00000000 00 0	.0000
000421.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12149535 06 1	-.3496	.00000000 00 0	.0000
000431.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12148855 06 1	-.5479	.00000000 00 0	.0000
000441.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12148175 06 1	-.7539	.00000000 00 0	.0000
000451.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12147497 06 1	1.0273	.00000000 00 0	.0000
000501.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12146820 06 1	-.2012	.00000000 00 0	.0000
000511.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12146144 06 1	.5605	.00000000 00 0	.0000
000521.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12145469 06 1	.3115	.00000000 00 0	.0000
000531.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12144795 06 1	1.0518	.00000000 00 0	.0000
000541.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12144122 06 1	.7822	.00000000 00 0	.0000
000551.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.12143450 06 1	.5010	.00000000 00 0	.0000

OCMJET ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
224651.000	.33496599 03 1	-.0015	.88343750 02 1	.0068	.00000000 00 0	.0000	.00000000 00 0	.0000
224751.000	.33494477 03 1	-.0005	.88288146 02 1	-.0158	.00000000 00 0	.0000	.00000000 00 0	.0000
224851.000	.33492464 03 1	-.0024	.88237125 02 1	.0132	.00000000 00 0	.0000	.00000000 00 0	.0000
224951.000	.33490556 03 1	-.0255	.88190574 02 1	-.0104	.00000000 00 0	.0000	.00000000 00 0	.0000
225051.000	.33488751 03 1	-.0035	.88148388 02 1	.0017	.00000000 00 0	.0000	.00000000 00 0	.0000
225151.000	.33487043 03 1	-.0226	.88110466 02 1	-.0085	.00000000 00 0	.0000	.00000000 00 0	.0000
225351.000	.33483906 03 1	-.0032	.88047008 02 1	.0329	.00000000 00 0	.0000	.00000000 00 0	.0000
225451.000	.33482470 03 1	-.0050	.88021293 02 1	.0045	.00000000 00 0	.0000	.00000000 00 0	.0000
225551.000	.33481118 03 1	-.0076	.87999458 02 1	.0043	.00000000 00 0	.0000	.00000000 00 0	.0000
225651.000	.33479847 03 1	.0011	.87981426 02 1	.0003	.00000000 00 0	.0000	.00000000 00 0	.0000
225751.000	.33478655 03 1	-.0070	.87967098 02 1	.0026	.00000000 00 0	.0000	.00000000 00 0	.0000
225851.000	.33477537 03 1	.0061	.87956398 02 1	-.0007	.00000000 00 0	.0000	.00000000 00 0	.0000
225951.000	.33476493 03 1	.0146	.87949249 02 1	.0024	.00000000 00 0	.0000	.00000000 00 0	.0000
230151.000	.33474611 03 1	.0054	.87945274 02 1	.0085	.00000000 00 0	.0000	.00000000 00 0	.0000
230251.000	.33473769 03 1	-.0062	.87948310 02 1	.0035	.00000000 00 0	.0000	.00000000 00 0	.0000
230351.000	.33472989 03 1	.0016	.87954586 02 1	.0012	.00000000 00 0	.0000	.00000000 00 0	.0000
230451.000	.33472270 03 1	.0028	.87964042 02 1	-.0002	.00000000 00 0	.0000	.00000000 00 0	.0000
230951.000	.33469513 03 1	.0046	.88056713 02 1	-.0065	.00000000 00 0	.0000	.00000000 00 0	.0000
231451.000	.33467983 03 1	.0043	.88219452 02 1	.0053	.00000000 00 0	.0000	.00000000 00 0	.0000
231551.000	.33467807 03 1	-.0018	.88259792 02 1	-.0049	.00000000 00 0	.0000	.00000000 00 0	.0000
231651.000	.33467670 03 1	-.0004	.88302620 02 1	-.0116	.00000000 00 0	.0000	.00000000 00 0	.0000
231751.000	.33467572 03 1	.0047	.88347866 02 1	-.0067	.00000000 00 0	.0000	.00000000 00 0	.0000
231951.000	.33467485 03 1	-.0002	.88445468 02 1	.0001	.00000000 00 0	.0000	.00000000 00 0	.0000
232051.000	.33467494 03 1	-.0001	.88497726 02 1	-.0020	.00000000 00 0	.0000	.00000000 00 0	.0000
232151.000	.33467537 03 1	-.0004	.88552238 02 1	.0036	.00000000 00 0	.0000	.00000000 00 0	.0000
232251.000	.33467612 03 1	-.0010	.88608947 02 1	-.0049	.00000000 00 0	.0000	.00000000 00 0	.0000
232351.000	.33467719 03 1	-.0020	.88667816 02 1	-.0096	.00000000 00 0	.0000	.00000000 00 0	.0000
232451.000	.33467856 03 1	-.0032	.88728813 02 1	-.0044	.00000000 00 0	.0000	.00000000 00 0	.0000
232851.000	.33468685 03 1	-.0028	.88993217 02 1	.0001	.00000000 00 0	.0000	.00000000 00 0	.0000
233051.000	.33469258 03 1	-.0002	.89137165 02 1	.0006	.00000000 00 0	.0000	.00000000 00 0	.0000
233151.000	.33469580 03 1	-.0032	.89211948 02 1	.0000	.00000000 00 0	.0000	.00000000 00 0	.0000
233351.000	.33470293 03 1	.0080	.89366973 02 1	-.0105	.00000000 00 0	.0000	.00000000 00 0	.0000
233451.000	.33470683 03 1	.0003	.89447155 02 1	-.0104	.00000000 00 0	.0000	.00000000 00 0	.0000
233551.000	.33471093 03 1	-.0076	.89529060 02 1	-.0061	.00000000 00 0	.0000	.00000000 00 0	.0000
234151.000	.33473957 03 1	-.0009	.90055286 02 1	-.0186	.00000000 00 0	.0000	.00000000 00 0	.0000

JCBJET ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
211706.000	.10673634 02 1	-.0187	.48545422 02 1	.0008	.00000000 00 0	.0000	.00000000 00 0	.0000
211716.000	.99733828 01 1	-.0193	.47361320 02 1	-.0029	.00000000 00 0	.0000	.00000000 00 0	.0000
211726.000	.92689663 01 1	-.0178	.46181824 02 1	.0028	.00000000 00 0	.0000	.00000000 00 0	.0000
211736.000	.85613278 01 1	-.0210	.45007583 02 1	.0093	.00000000 00 0	.0000	.00000000 00 0	.0000
211746.000	.78514261 01 1	-.0219	.43839293 02 1	.0117	.00000000 00 0	.0000	.00000000 00 0	.0000
211756.000	.71402171 01 1	-.0235	.42677588 02 1	.0136	.00000000 00 0	.0000	.00000000 00 0	.0000
211806.000	.64286629 01 1	-.0247	.41523088 02 1	.0123	.00000000 00 0	.0000	.00000000 00 0	.0000
211816.000	.57177053 01 1	-.0245	.40376411 02 1	.0092	.00000000 00 0	.0000	.00000000 00 0	.0000
211906.000	.00000000 00 0	.0000	.34779767 02 1	.0826	.00000000 00 0	.0000	.00000000 00 0	.0000
211916.000	.15149566 01 1	-.0259	.33691299 02 1	.0159	.00000000 00 0	.0000	.00000000 00 0	.0000
211936.000	.15778526 00 1	-.0220	.31548669 02 1	.0072	.00000000 00 0	.0000	.00000000 00 0	.0000
211946.000	.35950137 03 1	-.0401	.30483803 02 1	.0364	.00000000 00 0	.0000	.00000000 00 0	.0000
211956.000	.35884228 03 1	-.0316	.29443260 02 1	.0293	.00000000 00 0	.0000	.00000000 00 0	.0000
212006.000	.35819220 03 1	-.0321	.28415333 02 1	.0316	.00000000 00 0	.0000	.00000000 00 0	.0000
212016.000	.35755162 03 1	-.0320	.27400261 02 1	.0270	.00000000 00 0	.0000	.00000000 00 0	.0000
212026.000	.35692099 03 1	-.0279	.26398288 02 1	.0334	.00000000 00 0	.0000	.00000000 00 0	.0000
212036.000	.35630070 03 1	-.0320	.25409576 02 1	.0325	.00000000 00 0	.0000	.00000000 00 0	.0000
212046.000	.35569108 03 1	-.0329	.24434330 02 1	.0281	.00000000 00 0	.0000	.00000000 00 0	.0000
212056.000	.35509245 03 1	-.0306	.23472668 02 1	.0282	.00000000 00 0	.0000	.00000000 00 0	.0000
212106.000	.35450504 03 1	-.0376	.22524696 02 1	.0266	.00000000 00 0	.0000	.00000000 00 0	.0000
212116.000	.35392906 03 1	-.0320	.21590507 02 1	.0312	.00000000 00 0	.0000	.00000000 00 0	.0000
212126.000	.35336467 03 1	-.0320	.20670132 02 1	.0300	.00000000 00 0	.0000	.00000000 00 0	.0000
212136.000	.35281200 03 1	-.0297	.19763653 02 1	.0308	.00000000 00 0	.0000	.00000000 00 0	.0000
212146.000	.35227112 03 1	-.0271	.18871052 02 1	.0278	.00000000 00 0	.0000	.00000000 00 0	.0000
212156.000	.35174209 03 1	-.0264	.17992328 02 1	.0290	.00000000 00 0	.0000	.00000000 00 0	.0000
212206.000	.35122492 03 1	-.0335	.17127460 02 1	.0302	.00000000 00 0	.0000	.00000000 00 0	.0000
212216.000	.35071959 03 1	-.0344	.16276409 02 1	.0237	.00000000 00 0	.0000	.00000000 00 0	.0000
212226.000	.35022606 03 1	-.0311	.15439094 02 1	.0234	.00000000 00 0	.0000	.00000000 00 0	.0000
212236.000	.34974426 03 1	-.0316	.14615444 02 1	.0314	.00000000 00 0	.0000	.00000000 00 0	.0000
212246.000	.34927409 03 1	-.0316	.13805378 02 1	.0318	.00000000 00 0	.0000	.00000000 00 0	.0000
212256.000	.34881544 03 1	-.0291	.13008770 02 1	.0288	.00000000 00 0	.0000	.00000000 00 0	.0000
212306.000	.34836818 03 1	-.0261	.12225529 02 1	.0284	.00000000 00 0	.0000	.00000000 00 0	.0000
212316.000	.34793216 03 1	-.0322	.11455501 02 1	.0267	.00000000 00 0	.0000	.00000000 00 0	.0000
212326.000	.34750721 03 1	-.0314	.10698563 02 1	.0240	.00000000 00 0	.0000	.00000000 00 0	.0000
212336.000	.34709316 03 1	-.0355	.99545593 01 1	.0203	.00000000 00 0	.0000	.00000000 00 0	.0000
212346.000	.34668981 03 1	-.0362	.92233505 01 1	.0238	.00000000 00 0	.0000	.00000000 00 0	.0000
212356.000	.34629698 03 1	-.0335	.85047607 01 1	.0227	.00000000 00 0	.0000	.00000000 00 0	.0000
212406.000	.34591445 03 1	-.0291	.77986106 01 1	.0272	.00000000 00 0	.0000	.00000000 00 0	.0000
212416.000	.34554202 03 1	-.0307	.71047439 01 1	.0213	.00000000 00 0	.0000	.00000000 00 0	.0000
212426.000	.34517947 03 1	-.0282	.64229698 01 1	.0233	.00000000 00 0	.0000	.00000000 00 0	.0000
212436.000	.34482658 03 1	-.0274	.57531242 01 1	.0174	.00000000 00 0	.0000	.00000000 00 0	.0000
212446.000	.34448313 03 1	-.0280	.50950012 01 1	.0258	.00000000 00 0	.0000	.00000000 00 0	.0000
212456.000	.34414889 03 1	-.0278	.44484291 01 1	.0186	.00000000 00 0	.0000	.00000000 00 0	.0000
212646.000	.34101695 03 1	-.0636	.35804313 03 1	.0200	.00000000 00 0	.0000	.00000000 00 0	.0000
212656.000	.34077618 03 1	-.0387	.35752015 03 1	.0211	.00000000 00 0	.0000	.00000000 00 0	.0000
212706.000	.34054186 03 1	-.0523	.35700624 03 1	.0212	.00000000 00 0	.0000	.00000000 00 0	.0000
212806.000	.33926121 03 1	-.0272	.35410355 03 1	.0206	.00000000 00 0	.0000	.00000000 00 0	.0000
212816.000	.33906704 03 1	-.0250	.35364829 03 1	.0139	.00000000 00 0	.0000	.00000000 00 0	.0000
212836.000	.33869376 03 1	-.0195	.35276076 03 1	.0076	.00000000 00 0	.0000	.00000000 00 0	.0000
213506.000	.33415641 03 1	-.0196	.00000000 00 0	.0000	.00000000 00 0	.0000	.00000000 00 0	.0000
213516.000	.33408582 03 1	-.0030	.00000000 00 0	.0000	.00000000 00 0	.0000	.00000000 00 0	.0000
213526.000	.33401674 03 1	-.0080	.00000000 00 0	.0000	.00000000 00 0	.0000	.00000000 00 0	.0000
213536.000	.33394913 03 1	-.0063	.33942248 03 1	.0290	.00000000 00 0	.0000	.00000000 00 0	.0000
213546.000	.33388295 03 1	-.0140	.33919613 03 1	.0094	.00000000 00 0	.0000	.00000000 00 0	.0000
213556.000	.33381817 03 1	-.0151	.33897292 03 1	.0106	.00000000 00 0	.0000	.00000000 00 0	.0000
213606.000	.33375474 03 1	-.0116	.33875278 03 1	.0107	.00000000 00 0	.0000	.00000000 00 0	.0000

JOBJET ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
213616.000	.33369265 03 1	-.0134	.33853566 03 1	.0118	.00000000 00 0	.0000	.00000000 00 0	.0000
213626.000	.33363184 03 1	-.0085	.33832151 03 1	.0099	.00000000 00 0	.0000	.00000000 00 0	.0000
213636.000	.33357229 03 1	-.0129	.33811028 03 1	.0112	.00000000 00 0	.0000	.00000000 00 0	.0000
213646.000	.33351397 03 1	-.0104	.33790192 03 1	.0135	.00000000 00 0	.0000	.00000000 00 0	.0000
213656.000	.33345685 03 1	-.0112	.33769634 03 1	.0111	.00000000 00 0	.0000	.00000000 00 0	.0000
213706.000	.33340089 03 1	-.0092	.33749355 03 1	.0098	.00000000 00 0	.0000	.00000000 00 0	.0000
213716.000	.33334607 03 1	-.0103	.33729347 03 1	.0099	.00000000 00 0	.0000	.00000000 00 0	.0000
213726.000	.33329237 03 1	-.0085	.33709605 03 1	.0133	.00000000 00 0	.0000	.00000000 00 0	.0000
213736.000	.33323974 03 1	-.0137	.33690125 03 1	.0081	.00000000 00 0	.0000	.00000000 00 0	.0000
213746.000	.33318817 03 1	-.0021	.33670903 03 1	.0043	.00000000 00 0	.0000	.00000000 00 0	.0000
213756.000	.33313763 03 1	-.0034	.33651933 03 1	-.0020	.00000000 00 0	.0000	.00000000 00 0	.0000
213806.000	.33308810 03 1	.0062	.33633213 03 1	.0092	.00000000 00 0	.0000	.00000000 00 0	.0000
213816.000	.33303955 03 1	.0068	.33614737 03 1	.0099	.00000000 00 0	.0000	.00000000 00 0	.0000
213826.000	.33299196 03 1	.0005	.33596501 03 1	.0103	.00000000 00 0	.0000	.00000000 00 0	.0000
213836.000	.33294530 03 1	-.0108	.33578502 03 1	.0102	.00000000 00 0	.0000	.00000000 00 0	.0000
213846.000	.33289956 03 1	-.0109	.33560733 03 1	.0119	.00000000 00 0	.0000	.00000000 00 0	.0000
213856.000	.33285471 03 1	-.0080	.33543195 03 1	.0112	.00000000 00 0	.0000	.00000000 00 0	.0000
213906.000	.33281073 03 1	-.0079	.33525881 03 1	.0124	.00000000 00 0	.0000	.00000000 00 0	.0000
213916.000	.33276760 03 1	-.0107	.33508788 03 1	.0073	.00000000 00 0	.0000	.00000000 00 0	.0000
213926.000	.33272531 03 1	-.0103	.33491913 03 1	.0100	.00000000 00 0	.0000	.00000000 00 0	.0000
213936.000	.33268382 03 1	-.0068	.33475251 03 1	.0126	.00000000 00 0	.0000	.00000000 00 0	.0000
213946.000	.33264313 03 1	-.0060	.33458799 03 1	.0091	.00000000 00 0	.0000	.00000000 00 0	.0000
213956.000	.33260321 03 1	-.0040	.33442554 03 1	.0135	.00000000 00 0	.0000	.00000000 00 0	.0000
214006.000	.33256406 03 1	-.0088	.33426513 03 1	.0099	.00000000 00 0	.0000	.00000000 00 0	.0000
214016.000	.33252564 03 1	-.0103	.33410671 03 1	.0083	.00000000 00 0	.0000	.00000000 00 0	.0000
214026.000	.33248795 03 1	-.0085	.33395028 03 1	.0087	.00000000 00 0	.0000	.00000000 00 0	.0000
214036.000	.33245096 03 1	-.0094	.33379578 03 1	.0052	.00000000 00 0	.0000	.00000000 00 0	.0000
214046.000	.33241467 03 1	-.0071	.33364319 03 1	.0118	.00000000 00 0	.0000	.00000000 00 0	.0000
214056.000	.33237905 03 1	-.0074	.33349249 03 1	.0045	.00000000 00 0	.0000	.00000000 00 0	.0000
214106.000	.33234410 03 1	-.0083	.33334363 03 1	.0093	.00000000 00 0	.0000	.00000000 00 0	.0000
214116.000	.33230979 03 1	-.0040	.33319660 03 1	.0123	.00000000 00 0	.0000	.00000000 00 0	.0000
214126.000	.33227612 03 1	-.0042	.33305135 03 1	.0075	.00000000 00 0	.0000	.00000000 00 0	.0000
214136.000	.33224306 03 1	-.0051	.33290787 03 1	.0130	.00000000 00 0	.0000	.00000000 00 0	.0000
214146.000	.33221061 03 1	-.0046	.33276613 03 1	.0087	.00000000 00 0	.0000	.00000000 00 0	.0000
214156.000	.33217876 03 1	-.0066	.33262611 03 1	.0087	.00000000 00 0	.0000	.00000000 00 0	.0000
214206.000	.33214748 03 1	-.0093	.33248777 03 1	.0070	.00000000 00 0	.0000	.00000000 00 0	.0000
214216.000	.33211678 03 1	-.0105	.33235109 03 1	.0097	.00000000 00 0	.0000	.00000000 00 0	.0000
214226.000	.33208663 03 1	-.0043	.33221605 03 1	.0067	.00000000 00 0	.0000	.00000000 00 0	.0000
214236.000	.33205702 03 1	-.0086	.33208262 03 1	.0101	.00000000 00 0	.0000	.00000000 00 0	.0000
214246.000	.33202795 03 1	-.0115	.33195078 03 1	.0119	.00000000 00 0	.0000	.00000000 00 0	.0000
214256.000	.33199939 03 1	-.0068	.33182050 03 1	.0142	.00000000 00 0	.0000	.00000000 00 0	.0000
214306.000	.33197135 03 1	-.0087	.33169177 03 1	.0129	.00000000 00 0	.0000	.00000000 00 0	.0000
214316.000	.33194381 03 1	-.0091	.33156455 03 1	.0141	.00000000 00 0	.0000	.00000000 00 0	.0000
214326.000	.33191675 03 1	-.0140	.33143883 03 1	.0138	.00000000 00 0	.0000	.00000000 00 0	.0000
214336.000	.33189018 03 1	-.0034	.33131459 03 1	.0100	.00000000 00 0	.0000	.00000000 00 0	.0000
214346.000	.33186408 03 1	-.0052	.33119180 03 1	.0088	.00000000 00 0	.0000	.00000000 00 0	.0000
214356.000	.33183844 03 1	.0325	.33107045 03 1	.0081	.00000000 00 0	.0000	.00000000 00 0	.0000
214406.000	.33181325 03 1	-.0002	.33095051 03 1	.0100	.00000000 00 0	.0000	.00000000 00 0	.0000
214416.000	.33178850 03 1	-.0074	.33083195 03 1	.0105	.00000000 00 0	.0000	.00000000 00 0	.0000
214426.000	.33176418 03 1	.0009	.33071477 03 1	.0137	.00000000 00 0	.0000	.00000000 00 0	.0000
214436.000	.33174029 03 1	-.0031	.33059895 03 1	.0075	.00000000 00 0	.0000	.00000000 00 0	.0000
214446.000	.33171682 03 1	-.0036	.33048447 03 1	.0079	.00000000 00 0	.0000	.00000000 00 0	.0000
214456.000	.33169375 03 1	-.0004	.33037130 03 1	.0191	.00000000 00 0	.0000	.00000000 00 0	.0000
214506.000	.33167109 03 1	.0023	.33025943 03 1	.0069	.00000000 00 0	.0000	.00000000 00 0	.0000
214516.000	.33164881 03 1	-.0054	.33014883 03 1	.0055	.00000000 00 0	.0000	.00000000 00 0	.0000
214526.000	.33162692 03 1	.0006	.33003951 03 1	.0088	.00000000 00 0	.0000	.00000000 00 0	.0000

JOB JET ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
214536.000	.33160540 03 1	-.0039	.32993142 03 1	.0109	.00000000 00 0	.0000	.00000000 00 0	.0000
214546.000	.33158426 03 1	-.0007	.32982457 03 1	.0057	.00000000 00 0	.0000	.00000000 00 0	.0000
214556.000	.33156348 03 1	-.0058	.32971893 03 1	.0073	.00000000 00 0	.0000	.00000000 00 0	.0000
214606.000	.33154305 03 1	.0027	.32961449 03 1	.0137	.00000000 00 0	.0000	.00000000 00 0	.0000
214616.000	.33152298 03 1	-.0132	.32951122 03 1	.0090	.00000000 00 0	.0000	.00000000 00 0	.0000
214626.000	.33150324 03 1	.0066	.32940913 03 1	.0070	.00000000 00 0	.0000	.00000000 00 0	.0000
214636.000	.00000000 00 0	.0000	.32930817 03 1	.0622	.00000000 00 0	.0000	.00000000 00 0	.0000
214646.000	.00000000 00 0	.0000	.32920835 03 1	.0620	.00000000 00 0	.0000	.00000000 00 0	.0000
214656.000	.33144602 03 1	-.0060	.32910966 03 1	.0084	.00000000 00 0	.0000	.00000000 00 0	.0000
214706.000	.33142759 03 1	.0104	.32901206 03 1	.0060	.00000000 00 0	.0000	.00000000 00 0	.0000
214716.000	.00000000 00 0	.0000	.32891556 03 1	.0588	.00000000 00 0	.0000	.00000000 00 0	.0000
214726.000	.00000000 00 0	.0000	.32882013 03 1	.0622	.00000000 00 0	.0000	.00000000 00 0	.0000
214736.000	.00000000 00 0	.0000	.32872577 03 1	.0566	.00000000 00 0	.0000	.00000000 00 0	.0000
214746.000	.00000000 00 0	.0000	.32863245 03 1	.0539	.00000000 00 0	.0000	.00000000 00 0	.0000
214756.000	.00000000 00 0	.0000	.32854018 03 1	.0562	.00000000 00 0	.0000	.00000000 00 0	.0000
214806.000	.00000000 00 0	.0000	.32844891 03 1	.0574	.00000000 00 0	.0000	.00000000 00 0	.0000
214816.000	.00000000 00 0	.0000	.32835866 03 1	.0497	.00000000 00 0	.0000	.00000000 00 0	.0000
214826.000	.00000000 00 0	.0000	.32826941 03 1	.0509	.00000000 00 0	.0000	.00000000 00 0	.0000
214836.000	.00000000 00 0	.0000	.32818114 03 1	.0512	.00000000 00 0	.0000	.00000000 00 0	.0000
214846.000	.00000000 00 0	.0000	.32809385 03 1	.0525	.00000000 00 0	.0000	.00000000 00 0	.0000
214856.000	.00000000 00 0	.0000	.32800750 03 1	.0648	.00000000 00 0	.0000	.00000000 00 0	.0000
214906.000	.00000000 00 0	.0000	.32792212 03 1	.0802	.00000000 00 0	.0000	.00000000 00 0	.0000
214916.000	.00000000 00 0	.0000	.32783766 03 1	.0587	.00000000 00 0	.0000	.00000000 00 0	.0000
214926.000	.33119977 03 1	-.0030	.32775413 03 1	.0056	.00000000 00 0	.0000	.00000000 00 0	.0000
214936.000	.33118546 03 1	.0033	.32767153 03 1	.0042	.00000000 00 0	.0000	.00000000 00 0	.0000
214946.000	.33117138 03 1	.0054	.32758981 03 1	.0059	.00000000 00 0	.0000	.00000000 00 0	.0000
214956.000	.33115754 03 1	.0193	.32750899 03 1	.0047	.00000000 00 0	.0000	.00000000 00 0	.0000
215006.000	.33114392 03 1	-.0150	.32742904 03 1	.0026	.00000000 00 0	.0000	.00000000 00 0	.0000
215016.000	.33113053 03 1	-.0056	.32734998 03 1	.0017	.00000000 00 0	.0000	.00000000 00 0	.0000
215026.000	.33111736 03 1	.0036	.32727177 03 1	.0039	.00000000 00 0	.0000	.00000000 00 0	.0000
215036.000	.33110440 03 1	-.0014	.32719442 03 1	.0052	.00000000 00 0	.0000	.00000000 00 0	.0000
215046.000	.33109166 03 1	-.0006	.32711789 03 1	.0017	.00000000 00 0	.0000	.00000000 00 0	.0000
215056.000	.33107913 03 1	.0020	.32704220 03 1	-.0006	.00000000 00 0	.0000	.00000000 00 0	.0000
215106.000	.33106681 03 1	-.0076	.32696734 03 1	.0002	.00000000 00 0	.0000	.00000000 00 0	.0000
215116.000	.33105469 03 1	-.0095	.32689328 03 1	.0022	.00000000 00 0	.0000	.00000000 00 0	.0000
215126.000	.33104276 03 1	.0005	.32682003 03 1	.0015	.00000000 00 0	.0000	.00000000 00 0	.0000
215136.000	.33103104 03 1	.0103	.32674756 03 1	.0119	.00000000 00 0	.0000	.00000000 00 0	.0000
215146.000	.33101950 03 1	-.0341	.32667588 03 1	.0096	.00000000 00 0	.0000	.00000000 00 0	.0000
215156.000	.33100815 03 1	-.0048	.32660497 03 1	.0025	.00000000 00 0	.0000	.00000000 00 0	.0000
215206.000	.33099700 03 1	.0064	.32653483 03 1	.0026	.00000000 00 0	.0000	.00000000 00 0	.0000
215216.000	.33098602 03 1	-.0205	.32646545 03 1	.0100	.00000000 00 0	.0000	.00000000 00 0	.0000
215226.000	.33097523 03 1	-.0017	.32639682 03 1	.0126	.00000000 00 0	.0000	.00000000 00 0	.0000
215236.000	.33096461 03 1	.0029	.32632893 03 1	.0104	.00000000 00 0	.0000	.00000000 00 0	.0000
215246.000	.33095416 03 1	.0134	.32626176 03 1	.0056	.00000000 00 0	.0000	.00000000 00 0	.0000
215256.000	.33094389 03 1	.0237	.32619532 03 1	.0040	.00000000 00 0	.0000	.00000000 00 0	.0000
215306.000	.00000000 00 0	.0000	.32612959 03 1	.0587	.00000000 00 0	.0000	.00000000 00 0	.0000
215316.000	.00000000 00 0	.0000	.32606457 03 1	.0578	.00000000 00 0	.0000	.00000000 00 0	.0000
215326.000	.00000000 00 0	.0000	.32600025 03 1	.0601	.00000000 00 0	.0000	.00000000 00 0	.0000
215336.000	.00000000 00 0	.0000	.32593663 03 1	.0577	.00000000 00 0	.0000	.00000000 00 0	.0000
215346.000	.00000000 00 0	.0000	.32587368 03 1	.0567	.00000000 00 0	.0000	.00000000 00 0	.0000
215406.000	.00000000 00 0	.0000	.32574983 03 1	.0585	.00000000 00 0	.0000	.00000000 00 0	.0000
215416.000	.33086756 03 1	-.0117	.32568890 03 1	.0083	.00000000 00 0	.0000	.00000000 00 0	.0000
215426.000	.33085871 03 1	.0032	.32562862 03 1	.0045	.00000000 00 0	.0000	.00000000 00 0	.0000
215436.000	.33085001 03 1	.0119	.32556900 03 1	.0081	.00000000 00 0	.0000	.00000000 00 0	.0000
215446.000	.33084145 03 1	-.0094	.32551000 03 1	.0071	.00000000 00 0	.0000	.00000000 00 0	.0000
215456.000	.33083303 03 1	.0010	.32545165 03 1	.0074	.00000000 00 0	.0000	.00000000 00 0	.0000

JOBJET ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
215506.000	.33082476 03 1	-.0087	.32539393 03 1	.0051	.00000000 00 0	.0000	.00000000 00 0	.0000
215516.000	.33081661 03 1	-.0065	.32533683 03 1	.0062	.00000000 00 0	.0000	.00000000 00 0	.0000
215526.000	.33080860 03 1	-.0045	.32528034 03 1	.0047	.00000000 00 0	.0000	.00000000 00 0	.0000
215536.000	.33080073 03 1	-.0066	.32522447 03 1	.0065	.00000000 00 0	.0000	.00000000 00 0	.0000
215546.000	.33079299 03 1	-.0028	.32516918 03 1	.0038	.00000000 00 0	.0000	.00000000 00 0	.0000
215606.000	.33077788 03 1	-.0056	.32506041 03 1	.0065	.00000000 00 0	.0000	.00000000 00 0	.0000
215616.000	.33077052 03 1	-.0082	.32500691 03 1	.0060	.00000000 00 0	.0000	.00000000 00 0	.0000
215626.000	.33076328 03 1	-.0010	.32495398 03 1	.0049	.00000000 00 0	.0000	.00000000 00 0	.0000
215636.000	.33075616 03 1	-.0058	.32490163 03 1	.0073	.00000000 00 0	.0000	.00000000 00 0	.0000
215646.000	.33074916 03 1	-.0028	.32484984 03 1	.0050	.00000000 00 0	.0000	.00000000 00 0	.0000
215656.000	.33074228 03 1	.0041	.32479861 03 1	.0043	.00000000 00 0	.0000	.00000000 00 0	.0000
215706.000	.33073551 03 1	-.0051	.32474793 03 1	.0089	.00000000 00 0	.0000	.00000000 00 0	.0000
215716.000	.33072886 03 1	.0016	.32469781 03 1	.0050	.00000000 00 0	.0000	.00000000 00 0	.0000
215726.000	.33072231 03 1	.0082	.32464823 03 1	.0086	.00000000 00 0	.0000	.00000000 00 0	.0000
215736.000	.33071589 03 1	-.0074	.32459919 03 1	.0076	.00000000 00 0	.0000	.00000000 00 0	.0000
215746.000	.33070957 03 1	-.0010	.32455068 03 1	.0081	.00000000 00 0	.0000	.00000000 00 0	.0000
215756.000	.33070335 03 1	.0052	.32450269 03 1	.0061	.00000000 00 0	.0000	.00000000 00 0	.0000
215806.000	.33069725 03 1	.0093	.32445524 03 1	.0035	.00000000 00 0	.0000	.00000000 00 0	.0000
215816.000	.33069124 03 1	-.0086	.32440830 03 1	.0084	.00000000 00 0	.0000	.00000000 00 0	.0000
215826.000	.33068534 03 1	-.0007	.32436187 03 1	.0048	.00000000 00 0	.0000	.00000000 00 0	.0000
215836.000	.33067954 03 1	.0051	.32431595 03 1	.0067	.00000000 00 0	.0000	.00000000 00 0	.0000
215846.000	.33067384 03 1	-.0031	.32427053 03 1	.0082	.00000000 00 0	.0000	.00000000 00 0	.0000
215856.000	.33066824 03 1	.0025	.32422561 03 1	.0071	.00000000 00 0	.0000	.00000000 00 0	.0000
215906.000	.33066273 03 1	-.0060	.32418118 03 1	.0055	.00000000 00 0	.0000	.00000000 00 0	.0000
215916.000	.33065732 03 1	-.0006	.32413725 03 1	.0034	.00000000 00 0	.0000	.00000000 00 0	.0000
215926.000	.33065201 03 1	.0048	.32409380 03 1	.0068	.00000000 00 0	.0000	.00000000 00 0	.0000
215936.000	.33064678 03 1	.0020	.32405082 03 1	.0018	.00000000 00 0	.0000	.00000000 00 0	.0000
215946.000	.33064165 03 1	.0072	.32400832 03 1	.0043	.00000000 00 0	.0000	.00000000 00 0	.0000
215956.000	.33063661 03 1	-.0097	.32396629 03 1	.0003	.00000000 00 0	.0000	.00000000 00 0	.0000
220006.000	.33063165 03 1	-.0048	.32392473 03 1	.0038	.00000000 00 0	.0000	.00000000 00 0	.0000
220016.000	.33062679 03 1	.0001	.32388362 03 1	.0089	.00000000 00 0	.0000	.00000000 00 0	.0000
220026.000	.33062201 03 1	-.0071	.32384298 03 1	.0136	.00000000 00 0	.0000	.00000000 00 0	.0000
220036.000	.33061732 03 1	-.0024	.32380278 03 1	.0077	.00000000 00 0	.0000	.00000000 00 0	.0000
220046.000	.33061271 03 1	.0023	.32376304 03 1	.0075	.00000000 00 0	.0000	.00000000 00 0	.0000
220056.000	.33060818 03 1	.0068	.32372375 03 1	.0067	.00000000 00 0	.0000	.00000000 00 0	.0000
220106.000	.33060373 03 1	.0113	.32368489 03 1	.0056	.00000000 00 0	.0000	.00000000 00 0	.0000
220116.000	.33059937 03 1	-.0303	.32364647 03 1	.0120	.00000000 00 0	.0000	.00000000 00 0	.0000
220126.000	.33059509 03 1	-.0040	.32360848 03 1	.0120	.00000000 00 0	.0000	.00000000 00 0	.0000
220136.000	.33059087 03 1	.0002	.32357093 03 1	.0075	.00000000 00 0	.0000	.00000000 00 0	.0000
220146.000	.33058674 03 1	-.0156	.32353378 03 1	.0126	.00000000 00 0	.0000	.00000000 00 0	.0000
220156.000	.33058269 03 1	-.0056	.32349707 03 1	.0133	.00000000 00 0	.0000	.00000000 00 0	.0000
220206.000	.33057871 03 1	-.0016	.32346077 03 1	.0096	.00000000 00 0	.0000	.00000000 00 0	.0000
220216.000	.33057481 03 1	-.0076	.32342489 03 1	.0095	.00000000 00 0	.0000	.00000000 00 0	.0000
220226.000	.33057097 03 1	-.0038	.32338942 03 1	.0089	.00000000 00 0	.0000	.00000000 00 0	.0000
220236.000	.33056721 03 1	-.0000	.32335435 03 1	.0040	.00000000 00 0	.0000	.00000000 00 0	.0000
220246.000	.33056352 03 1	-.0063	.32331968 03 1	.0027	.00000000 00 0	.0000	.00000000 00 0	.0000
220256.000	.33055991 03 1	-.0027	.32328542 03 1	.0049	.00000000 00 0	.0000	.00000000 00 0	.0000
220306.000	.33055635 03 1	.0009	.32325155 03 1	.0048	.00000000 00 0	.0000	.00000000 00 0	.0000
220316.000	.33055287 03 1	.0044	.32321807 03 1	.0082	.00000000 00 0	.0000	.00000000 00 0	.0000
220326.000	.33054946 03 1	-.0042	.32318499 03 1	.0073	.00000000 00 0	.0000	.00000000 00 0	.0000
220336.000	.33054611 03 1	-.0008	.32315229 03 1	.0060	.00000000 00 0	.0000	.00000000 00 0	.0000
220346.000	.33054283 03 1	.0025	.32311996 03 1	.0063	.00000000 00 0	.0000	.00000000 00 0	.0000
220356.000	.33053961 03 1	.0057	.32308802 03 1	.0002	.00000000 00 0	.0000	.00000000 00 0	.0000
220406.000	.33053645 03 1	.0003	.00000000 00 0	.0000	.00000000 00 0	.0000	.00000000 00 0	.0000
220416.000	.00000000 00 0	.0000	.32302526 03 0	-.5289	.00000000 00 0	.0000	.00000000 00 0	.0000
220426.000	.00000000 00 0	.0000	.32299443 03 0	-.8821	.00000000 00 0	.0000	.00000000 00 0	.0000

JOBJET ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
220436.000	.00000000 00 0	.0000	.32296397 03 0	-.2676	.00000000 00 0	.0000	.00000000 00 0	.0000
220446.000	.33052445 03 1	-.0051	.32293387 03 0	.2944	.00000000 00 0	.0000	.00000000 00 0	.0000
220456.000	.33052160 03 1	-.0021	.32290414 03 1	-.1460	.00000000 00 0	.0000	.00000000 00 0	.0000
220506.000	.33051881 03 1	.0087	.32287475 03 1	-.0086	.00000000 00 0	.0000	.00000000 00 0	.0000
220516.000	.33051608 03 1	-.0046	.32284572 03 1	.0064	.00000000 00 0	.0000	.00000000 00 0	.0000
220526.000	.33051340 03 1	-.0019	.32281705 03 1	.0091	.00000000 00 0	.0000	.00000000 00 0	.0000
220536.000	.33051079 03 1	.0007	.32278873 03 1	.0074	.00000000 00 0	.0000	.00000000 00 0	.0000
220546.000	.33050822 03 1	.0033	.32276074 03 1	.0094	.00000000 00 0	.0000	.00000000 00 0	.0000
220556.000	.33050572 03 1	.0058	.32273310 03 1	.0130	.00000000 00 0	.0000	.00000000 00 0	.0000
220606.000	.33050326 03 1	-.0077	.32270580 03 1	.0123	.00000000 00 0	.0000	.00000000 00 0	.0000
220616.000	.33050086 03 1	-.0053	.32267883 03 1	.0133	.00000000 00 0	.0000	.00000000 00 0	.0000
220626.000	.33049851 03 1	-.0029	.32265220 03 1	.0119	.00000000 00 0	.0000	.00000000 00 0	.0000
220636.000	.33049622 03 1	.0094	.32262590 03 1	.0122	.00000000 00 0	.0000	.00000000 00 0	.0000
220646.000	.33049398 03 1	-.0003	.32259993 03 1	.0061	.00000000 00 0	.0000	.00000000 00 0	.0000
220656.000	.33049179 03 1	.0019	.32257428 03 1	.0058	.00000000 00 0	.0000	.00000000 00 0	.0000
220706.000	.33048965 03 1	.0040	.32254896 03 1	.0051	.00000000 00 0	.0000	.00000000 00 0	.0000
220716.000	.33048755 03 1	.0061	.32252396 03 1	.0061	.00000000 00 0	.0000	.00000000 00 0	.0000
220726.000	.00000000 00 0	.0000	.32249927 03 1	.0571	.00000000 00 0	.0000	.00000000 00 0	.0000
220736.000	.33048352 03 1	.0002	.32247490 03 1	.0091	.00000000 00 0	.0000	.00000000 00 0	.0000
220746.000	.33048157 03 1	.0021	.32245085 03 1	.0052	.00000000 00 0	.0000	.00000000 00 0	.0000
220756.000	.33047967 03 1	-.0119	.32242710 03 1	.0049	.00000000 00 0	.0000	.00000000 00 0	.0000
220806.000	.33047782 03 1	-.0001	.32240367 03 1	.0063	.00000000 00 0	.0000	.00000000 00 0	.0000
220816.000	.33047601 03 1	.0017	.32238053 03 1	.0074	.00000000 00 0	.0000	.00000000 00 0	.0000
220826.000	.33047425 03 1	.0035	.32235771 03 1	.0063	.00000000 00 0	.0000	.00000000 00 0	.0000
220836.000	.33047254 03 1	-.0028	.32233518 03 1	.0068	.00000000 00 0	.0000	.00000000 00 0	.0000
220846.000	.33047086 03 1	-.0031	.32231295 03 1	.0030	.00000000 00 0	.0000	.00000000 00 0	.0000
220856.000	.33046923 03 1	-.0014	.32229101 03 1	.0049	.00000000 00 0	.0000	.00000000 00 0	.0000
220906.000	.33046765 03 1	.0002	.32226937 03 1	.0086	.00000000 00 0	.0000	.00000000 00 0	.0000
220916.000	.33046610 03 1	.0017	.32224802 03 1	.0099	.00000000 00 0	.0000	.00000000 00 0	.0000
220926.000	.33046461 03 1	.0032	.32222696 03 1	.0149	.00000000 00 0	.0000	.00000000 00 0	.0000
220936.000	.33046315 03 1	.0047	.32220619 03 1	.0117	.00000000 00 0	.0000	.00000000 00 0	.0000
220946.000	.33046173 03 1	.0061	.32218570 03 1	.0122	.00000000 00 0	.0000	.00000000 00 0	.0000
220956.000	.33046035 03 1	.0075	.32216550 03 1	.0104	.00000000 00 0	.0000	.00000000 00 0	.0000
221006.000	.33045901 03 1	.0089	.32214557 03 1	.0103	.00000000 00 0	.0000	.00000000 00 0	.0000
221016.000	.33045772 03 1	.0102	.32212593 03 1	.0059	.00000000 00 0	.0000	.00000000 00 0	.0000
221026.000	.33045646 03 1	.0114	.32210656 03 1	.0053	.00000000 00 0	.0000	.00000000 00 0	.0000
221036.000	.00000000 00 0	.0000	.32208746 03 1	.0669	.00000000 00 0	.0000	.00000000 00 0	.0000
221046.000	.33045406 03 1	-.0001	.32206864 03 1	.0052	.00000000 00 0	.0000	.00000000 00 0	.0000
221056.000	.33045291 03 1	-.0010	.32205008 03 1	.0058	.00000000 00 0	.0000	.00000000 00 0	.0000
221106.000	.33045181 03 1	.0001	.32203180 03 1	.0080	.00000000 00 0	.0000	.00000000 00 0	.0000
221116.000	.33045074 03 1	.0012	.32201378 03 1	.0060	.00000000 00 0	.0000	.00000000 00 0	.0000
221126.000	.33044970 03 1	.0023	.32199602 03 1	.0078	.00000000 00 0	.0000	.00000000 00 0	.0000
221136.000	.33044871 03 1	.0033	.32197852 03 1	.0113	.00000000 00 0	.0000	.00000000 00 0	.0000
221146.000	.33044774 03 1	.0042	.32196130 03 1	.0105	.00000000 00 0	.0000	.00000000 00 0	.0000
221156.000	.33044682 03 1	.0052	.32194432 03 1	.0115	.00000000 00 0	.0000	.00000000 00 0	.0000
221206.000	.33044593 03 1	.0061	.32192760 03 1	.0142	.00000000 00 0	.0000	.00000000 00 0	.0000
221216.000	.33044507 03 1	.0069	.32191114 03 1	.0106	.00000000 00 0	.0000	.00000000 00 0	.0000
221226.000	.33044424 03 1	.0078	.32189492 03 1	.0109	.00000000 00 0	.0000	.00000000 00 0	.0000
221236.000	.33044345 03 1	.0086	.32187897 03 1	.0068	.00000000 00 0	.0000	.00000000 00 0	.0000
221246.000	.33044269 03 1	-.0047	.32186325 03 1	.0005	.00000000 00 0	.0000	.00000000 00 0	.0000
221256.000	.33044197 03 1	-.0132	.00000000 00 0	.0000	.00000000 00 0	.0000	.00000000 00 0	.0000
221306.000	.33044127 03 1	-.0031	.32183256 03 1	-.1409	.00000000 00 0	.0000	.00000000 00 0	.0000
221316.000	.33044061 03 1	-.0025	.32181759 03 1	-.0079	.00000000 00 0	.0000	.00000000 00 0	.0000
221326.000	.33043998 03 1	-.0019	.32180286 03 1	.0249	.00000000 00 0	.0000	.00000000 00 0	.0000
221336.000	.33043939 03 1	-.0013	.32178837 03 1	.0174	.00000000 00 0	.0000	.00000000 00 0	.0000
221346.000	.33043882 03 1	-.0127	.32177411 03 1	.0136	.00000000 00 0	.0000	.00000000 00 0	.0000

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TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
221356.000	.33043828 03 1	-.0002	.32176009 03 1	.0096	.00000000 00 0	.0000	.00000000 00 0	.0000
221406.000	.33043777 03 1	-.0077	.32174630 03 1	.0114	.00000000 00 0	.0000	.00000000 00 0	.0000
221416.000	.33043730 03 1	-.0052	.32173276 03 1	.0089	.00000000 00 0	.0000	.00000000 00 0	.0000
221436.000	.33043643 03 1	-.0043	.32170635 03 1	.0073	.00000000 00 0	.0000	.00000000 00 0	.0000
221446.000	.33043604 03 1	-.0039	.32169349 03 1	.0042	.00000000 00 0	.0000	.00000000 00 0	.0000
221456.000	.33043567 03 1	-.0015	.32168087 03 1	.0088	.00000000 00 0	.0000	.00000000 00 0	.0000
221506.000	.33043534 03 1	-.0012	.32166845 03 1	.0072	.00000000 00 0	.0000	.00000000 00 0	.0000
221516.000	.33043503 03 1	-.0009	.32165627 03 1	.0074	.00000000 00 0	.0000	.00000000 00 0	.0000
221526.000	.33043475 03 1	-.0006	.32164431 03 1	.0074	.00000000 00 0	.0000	.00000000 00 0	.0000
221616.000	.33043375 03 1	.0064	.32158778 03 1	.0119	.00000000 00 0	.0000	.00000000 00 0	.0000
221626.000	.33043363 03 1	-.0014	.32157712 03 1	.0085	.00000000 00 0	.0000	.00000000 00 0	.0000
221636.000	.33043353 03 1	-.0013	.32156667 03 1	.0090	.00000000 00 0	.0000	.00000000 00 0	.0000
221646.000	.33043346 03 1	.0007	.32155644 03 1	.0092	.00000000 00 0	.0000	.00000000 00 0	.0000
221656.000	.33043341 03 1	.0008	.32154641 03 1	.0092	.00000000 00 0	.0000	.00000000 00 0	.0000
221706.000	.33043339 03 1	.0008	.32153659 03 1	.0050	.00000000 00 0	.0000	.00000000 00 0	.0000
221716.000	.33043339 03 1	.0008	.32152697 03 1	.0066	.00000000 00 0	.0000	.00000000 00 0	.0000
221726.000	.33043341 03 1	.0008	.32151756 03 1	.0061	.00000000 00 0	.0000	.00000000 00 0	.0000
221736.000	.33043346 03 1	-.0212	.32150835 03 1	.0113	.00000000 00 0	.0000	.00000000 00 0	.0000
221746.000	.33043353 03 1	-.0013	.32149936 03 1	.0103	.00000000 00 0	.0000	.00000000 00 0	.0000
221756.000	.33043362 03 1	-.0014	.32149055 03 1	.0111	.00000000 00 0	.0000	.00000000 00 0	.0000
221806.000	.33043374 03 1	-.0015	.32148194 03 1	.0097	.00000000 00 0	.0000	.00000000 00 0	.0000
221816.000	.33043388 03 1	-.0016	.32147354 03 1	.0161	.00000000 00 0	.0000	.00000000 00 0	.0000
221826.000	.33043404 03 1	-.0018	.32146532 03 1	.0163	.00000000 00 0	.0000	.00000000 00 0	.0000
221836.000	.33043423 03 1	-.0020	.32145731 03 1	.0163	.00000000 00 0	.0000	.00000000 00 0	.0000
221846.000	.33043443 03 1	.0098	.32144949 03 1	.0121	.00000000 00 0	.0000	.00000000 00 0	.0000
221856.000	.33043466 03 1	.0016	.32144187 03 1	.0157	.00000000 00 0	.0000	.00000000 00 0	.0000
221906.000	.33043490 03 1	-.0006	.32143443 03 1	.0151	.00000000 00 0	.0000	.00000000 00 0	.0000
221916.000	.33043517 03 1	-.0009	.32142719 03 1	.0144	.00000000 00 0	.0000	.00000000 00 0	.0000
221926.000	.33043546 03 1	.0048	.32142013 03 1	.0114	.00000000 00 0	.0000	.00000000 00 0	.0000
221936.000	.33043577 03 1	.0065	.32141326 03 1	.0143	.00000000 00 0	.0000	.00000000 00 0	.0000
221946.000	.33043610 03 1	-.0038	.32140659 03 1	.0110	.00000000 00 0	.0000	.00000000 00 0	.0000
221956.000	.33043645 03 1	.0038	.32140009 03 1	.0115	.00000000 00 0	.0000	.00000000 00 0	.0000
222006.000	.33043682 03 1	.0034	.32139378 03 1	.0098	.00000000 00 0	.0000	.00000000 00 0	.0000
222016.000	.33043721 03 1	.0011	.32138765 03 1	.0099	.00000000 00 0	.0000	.00000000 00 0	.0000
222026.000	.33043762 03 1	.0007	.32138170 03 1	.0098	.00000000 00 0	.0000	.00000000 00 0	.0000
222036.000	.33043805 03 1	.0002	.32137594 03 1	.0096	.00000000 00 0	.0000	.00000000 00 0	.0000
222046.000	.33043850 03 1	-.0022	.32137036 03 1	.0072	.00000000 00 0	.0000	.00000000 00 0	.0000
222056.000	.33043896 03 1	-.0027	.32136495 03 1	.0066	.00000000 00 0	.0000	.00000000 00 0	.0000
222106.000	.33043945 03 1	-.0032	.32135972 03 1	.0058	.00000000 00 0	.0000	.00000000 00 0	.0000
222116.000	.33043995 03 1	.0163	.32135467 03 1	.0069	.00000000 00 0	.0000	.00000000 00 0	.0000
222126.000	.33044047 03 1	.0018	.32134980 03 1	.0017	.00000000 00 0	.0000	.00000000 00 0	.0000
222136.000	.33044101 03 1	.0013	.32134509 03 1	.0004	.00000000 00 0	.0000	.00000000 00 0	.0000
222146.000	.33044156 03 1	.0007	.32134055 03 1	.0050	.00000000 00 0	.0000	.00000000 00 0	.0000
222206.000	.33044273 03 1	-.0004	.32133202 03 1	.0095	.00000000 00 0	.0000	.00000000 00 0	.0000
222216.000	.33044334 03 1	-.0010	.32132800 03 1	.0115	.00000000 00 0	.0000	.00000000 00 0	.0000
222226.000	.33044396 03 1	-.0017	.32132415 03 1	.0134	.00000000 00 0	.0000	.00000000 00 0	.0000
222236.000	.33044461 03 1	-.0023	.32132047 03 1	.0111	.00000000 00 0	.0000	.00000000 00 0	.0000
222246.000	.33044527 03 1	-.0030	.32131696 03 1	.0106	.00000000 00 0	.0000	.00000000 00 0	.0000
222256.000	.33044595 03 1	-.0036	.32131361 03 1	.0119	.00000000 00 0	.0000	.00000000 00 0	.0000
222306.000	.33044663 03 1	-.0043	.32131043 03 1	.0131	.00000000 00 0	.0000	.00000000 00 0	.0000
222316.000	.33044734 03 1	.0130	.32130741 03 1	.0081	.00000000 00 0	.0000	.00000000 00 0	.0000
222326.000	.33044807 03 1	-.0038	.32130455 03 1	.0110	.00000000 00 0	.0000	.00000000 00 0	.0000
222336.000	.33044881 03 1	-.0045	.32130186 03 1	.0097	.00000000 00 0	.0000	.00000000 00 0	.0000
222346.000	.33044956 03 1	.0187	.32129932 03 1	.0102	.00000000 00 0	.0000	.00000000 00 0	.0000
222356.000	.33045033 03 1	.0180	.32129695 03 1	.0066	.00000000 00 0	.0000	.00000000 00 0	.0000
222406.000	.00000000 00 0	.0000	.32129474 03 1	.0616	.00000000 00 0	.0000	.00000000 00 0	.0000

JOBJET ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
222551.000	.33046025 03 1	-.0099	.32128083 03 1	.0047	.00000000 00 0	.0000	.00000000 00 0	.0000
222651.000	.33046614 03 1	-.0018	.32128031 03 1	.0092	.00000000 00 0	.0000	.00000000 00 0	.0000
222751.000	.33047248 03 1	.0018	.32128493 03 1	.0086	.00000000 00 0	.0000	.00000000 00 0	.0000
222851.000	.33047925 03 1	.0010	.32129455 03 1	.0050	.00000000 00 0	.0000	.00000000 00 0	.0000
222951.000	.33048642 03 1	.0039	.32130898 03 1	.0025	.00000000 00 0	.0000	.00000000 00 0	.0000
223051.000	.33049397 03 1	-.0057	.32132807 03 1	.0094	.00000000 00 0	.0000	.00000000 00 0	.0000
223151.000	.33050187 03 1	.0044	.32135167 03 1	.0079	.00000000 00 0	.0000	.00000000 00 0	.0000
223251.000	.33051009 03 1	-.0039	.32137965 03 1	.0079	.00000000 00 0	.0000	.00000000 00 0	.0000
223351.000	.33051863 03 1	.0016	.32141185 03 1	.0037	.00000000 00 0	.0000	.00000000 00 0	.0000
223451.000	.33052745 03 1	-.0053	.32144814 03 1	.0034	.00000000 00 0	.0000	.00000000 00 0	.0000
223551.000	.33053656 03 1	.0136	.32148842 03 1	.0092	.00000000 00 0	.0000	.00000000 00 0	.0000
223651.000	.33054591 03 1	.0122	.32153254 03 1	.0091	.00000000 00 0	.0000	.00000000 00 0	.0000
223751.000	.33055551 03 1	.0026	.32158039 03 1	.0032	.00000000 00 0	.0000	.00000000 00 0	.0000
223851.000	.33056533 03 1	-.0033	.32163187 03 1	.0018	.00000000 00 0	.0000	.00000000 00 0	.0000
223951.000	.33057537 03 1	.0027	.32168687 03 1	.0048	.00000000 00 0	.0000	.00000000 00 0	.0000
224051.000	.33058560 03 1	-.0076	.32174530 03 1	.0044	.00000000 00 0	.0000	.00000000 00 0	.0000
224151.000	.33059602 03 1	.0099	.32180703 03 1	.0047	.00000000 00 0	.0000	.00000000 00 0	.0000
224251.000	.33060662 03 1	-.0007	.32187200 03 1	.0037	.00000000 00 0	.0000	.00000000 00 0	.0000
224351.000	.33061738 03 1	-.0035	.32194012 03 1	.0036	.00000000 00 0	.0000	.00000000 00 0	.0000
224451.000	.33062830 03 1	-.0005	.32201127 03 1	.0005	.00000000 00 0	.0000	.00000000 00 0	.0000
224551.000	.33063936 03 1	.0044	.32208540 03 1	.0004	.00000000 00 0	.0000	.00000000 00 0	.0000
224651.000	.33065056 03 1	.0072	.32216242 03 1	.0014	.00000000 00 0	.0000	.00000000 00 0	.0000
224751.000	.33066189 03 1	-.0002	.32224225 03 1	.0056	.00000000 00 0	.0000	.00000000 00 0	.0000
224851.000	.33067333 03 1	.0083	.32232482 03 1	.0071	.00000000 00 0	.0000	.00000000 00 0	.0000
224951.000	.33068489 03 1	-.0013	.32241006 03 1	.0039	.00000000 00 0	.0000	.00000000 00 0	.0000
225051.000	.33069655 03 1	.0010	.32249790 03 1	.0001	.00000000 00 0	.0000	.00000000 00 0	.0000
225151.000	.33070831 03 1	-.0008	.32258827 03 1	-.0023	.00000000 00 0	.0000	.00000000 00 0	.0000
225251.000	.33072017 03 1	-.0027	.32268111 03 1	.0069	.00000000 00 0	.0000	.00000000 00 0	.0000
225351.000	.00000000 00 0	.0000	.32277636 03 1	.0580	.00000000 00 0	.0000	.00000000 00 0	.0000
225451.000	.33074413 03 1	-.0168	.32287396 03 1	-.0038	.00000000 00 0	.0000	.00000000 00 0	.0000
225551.000	.33075622 03 1	-.0289	.32297385 03 1	-.0077	.00000000 00 0	.0000	.00000000 00 0	.0000
225651.000	.33076838 03 1	.0008	.32307599 03 1	.0022	.00000000 00 0	.0000	.00000000 00 0	.0000
225751.000	.33078061 03 1	.0005	.32318029 03 1	.0019	.00000000 00 0	.0000	.00000000 00 0	.0000
225851.000	.33079291 03 1	.0221	.32328674 03 1	-.0005	.00000000 00 0	.0000	.00000000 00 0	.0000
225951.000	.33080525 03 1	.0018	.32339526 03 1	-.0029	.00000000 00 0	.0000	.00000000 00 0	.0000
230051.000	.33081765 03 1	.0153	.32350582 03 1	.0005	.00000000 00 0	.0000	.00000000 00 0	.0000
230151.000	.33083009 03 1	-.0012	.32361836 03 1	.0020	.00000000 00 0	.0000	.00000000 00 0	.0000
230351.000	.33085512 03 1	.0016	.32384924 03 1	-.0008	.00000000 00 0	.0000	.00000000 00 0	.0000
231651.000	.33102050 03 1	-.0007	.32551746 03 1	-.0004	.12399607 06 0	2.3486	.00000000 00 0	.0000
231751.000	.33103334 03 1	.0084	.32565652 03 1	.0026	.12393005 06 1	.0107	.00000000 00 0	.0000
231851.000	.33104618 03 1	.0015	.32579697 03 1	.0002	.12386476 06 1	-.0576	.00000000 00 0	.0000
231951.000	.33105902 03 1	.0026	.32593876 03 1	-.0016	.12380019 06 1	-.1270	.00000000 00 0	.0000
232051.000	.33107187 03 1	-.0083	.32608189 03 1	-.0006	.12373632 06 1	-.0449	.00000000 00 0	.0000
232151.000	.33108473 03 1	.0068	.32622633 03 1	-.0010	.12367316 06 1	.0000	.00000000 00 0	.0000
232251.000	.33109758 03 1	.0158	.32637204 03 1	.0033	.12361068 06 1	.0781	.00000000 00 0	.0000
232351.000	.33111043 03 1	.0029	.32651899 03 1	.0004	.12354888 06 1	.1201	.00000000 00 0	.0000
232451.000	.33112328 03 1	.0060	.32666719 03 1	-.0038	.12348774 06 1	.0957	.00000000 00 0	.0000
232551.000	.33113613 03 1	.0011	.32681660 03 1	.0069	.12342726 06 1	.0156	.00000000 00 0	.0000
232751.000	.33116183 03 1	.0072	.32711894 03 1	-.0014	.12330823 06 1	-.0898	.00000000 00 0	.0000
232951.000	.33118750 03 1	-.0046	.32742584 03 1	-.0062	.12319170 06 1	-.0020	.00000000 00 0	.0000
233051.000	.33120033 03 1	.0045	.32758097 03 1	.0007	.12313435 06 1	.0674	.00000000 00 0	.0000
233151.000	.33121315 03 1	.0036	.32773716 03 1	-.0014	.12307760 06 1	.1172	.00000000 00 0	.0000
233251.000	.33122596 03 1	.0027	.32789442 03 1	-.0046	.12302144 06 1	.0762	.00000000 00 0	.0000
233351.000	.33123877 03 1	-.0082	.32805273 03 1	.0031	.12296586 06 1	.0352	.00000000 00 0	.0000
233451.000	.33125156 03 1	.0069	.32821206 03 1	-.0042	.12291086 06 1	-.0400	.00000000 00 0	.0000
233551.000	.33126435 03 1	-.0039	.32837240 03 1	-.0025	.12285642 06 1	-.0781	.00000000 00 0	.0000

JOBJET ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
234151.000	.33134084 03 1	.0051	.32935467 03 1	.0015	.00000000 00 0	.0000	.00000000 00 0	.0000
234351.000	.33136624 03 1	.0016	.32968941 03 1	-.0011	.00000000 00 0	.0000	.00000000 00 0	.0000
234451.000	.33137891 03 1	.0009	.32985809 03 1	-.0058	.00000000 00 0	.0000	.00000000 00 0	.0000
234551.000	.33139158 03 1	.0021	.33002762 03 1	-.0093	.00000000 00 0	.0000	.00000000 00 0	.0000
234651.000	.33140423 03 1	.0034	.33019799 03 1	-.0036	.00000000 00 0	.0000	.00000000 00 0	.0000
234751.000	.33141687 03 1	.0047	.33036918 03 1	-.0007	.00000000 00 0	.0000	.00000000 00 0	.0000
234851.000	.33142949 03 1	.0020	.33054119 03 1	-.0027	.00000000 00 0	.0000	.00000000 00 0	.0000
234951.000	.33144210 03 1	.0053	.33071399 03 1	-.0015	.00000000 00 0	.0000	.00000000 00 0	.0000
235051.000	.33145469 03 1	-.0014	.33088757 03 1	-.0010	.00000000 00 0	.0000	.00000000 00 0	.0000
235151.000	.33146727 03 1	-.0000	.33106194 03 1	-.0013	.00000000 00 0	.0000	.00000000 00 0	.0000
235251.000	.33147983 03 1	-.0027	.33123706 03 1	-.0044	.00000000 00 0	.0000	.00000000 00 0	.0000
235351.000	.33149238 03 1	-.0013	.33141294 03 1	-.0103	.00000000 00 0	.0000	.00000000 00 0	.0000
235451.000	.33150491 03 1	-.0139	.33158955 03 1	.0012	.00000000 00 0	.0000	.00000000 00 0	.0000
235551.000	.33151742 03 1	.0055	.33176689 03 1	.0039	.00000000 00 0	.0000	.00000000 00 0	.0000
235651.000	.33152992 03 1	.0029	.33194495 03 1	-.0041	.00000000 00 0	.0000	.00000000 00 0	.0000
235751.000	.33154240 03 1	.0024	.33212371 03 1	.0011	.00000000 00 0	.0000	.00000000 00 0	.0000
235851.000	.33155487 03 1	.0019	.33230316 03 1	.0017	.00000000 00 0	.0000	.00000000 00 0	.0000
235951.000	.33156732 03 1	.0033	.33248330 03 1	-.0004	.00000000 00 0	.0000	.00000000 00 0	.0000
000051.000	.33157976 03 1	.0028	.33266417 03 1	-.0032	.00000000 00 0	.0000	.00000000 00 0	.0000
000151.000	.33159217 03 1	-.0017	.33284565 03 1	-.0067	.00000000 00 0	.0000	.00000000 00 0	.0000
000251.000	.33160457 03 1	-.0021	.33302778 03 1	-.0068	.00000000 00 0	.0000	.00000000 00 0	.0000
000351.000	.33161696 03 1	.0054	.33321056 03 1	.0025	.00000000 00 0	.0000	.00000000 00 0	.0000
000451.000	.33162933 03 1	.0070	.33339397 03 1	-.0069	.00000000 00 0	.0000	.00000000 00 0	.0000
000951.000	.33169092 03 1	.0030	.33432025 03 1	-.0010	.00000000 00 0	.0000	.00000000 00 0	.0000
001051.000	.33170319 03 1	.0087	.33450729 03 1	-.0000	.12125348 06 1	-.0176	.00000000 00 0	.0000
001151.000	.33171545 03 1	.0104	.33469491 03 1	-.0016	.12121503 06 1	.0313	.00000000 00 0	.0000
001251.000	.33172768 03 1	-.0019	.33488308 03 1	-.0057	.12117693 06 1	.0732	.00000000 00 0	.0000
001351.000	.33173990 03 1	.0038	.33507182 03 1	-.0044	.12113917 06 1	.0898	.00000000 00 0	.0000
001451.000	.33175210 03 1	-.0085	.33526111 03 1	.0043	.12110175 06 1	.0254	.00000000 00 0	.0000
001551.000	.33176429 03 1	.0033	.33545094 03 1	-.0015	.12106467 06 1	-.0361	.00000000 00 0	.0000
001651.000	.33177646 03 1	.0010	.33564131 03 1	-.0018	.12102793 06 1	-.1113	.00000000 00 0	.0000
001751.000	.33178861 03 1	.0008	.33583222 03 1	-.0027	.12099151 06 1	-.0752	.00000000 00 0	.0000
001851.000	.33180075 03 1	.0046	.33602363 03 1	-.0061	.12095542 06 1	-.0244	.00000000 00 0	.0000
001951.000	.33181287 03 1	-.0016	.33621557 03 1	-.0000	.12091966 06 1	.0430	.00000000 00 0	.0000
002051.000	.33182498 03 1	.0042	.33640802 03 1	-.0024	.12088421 06 1	.0732	.00000000 00 0	.0000
002151.000	.33183707 03 1	.0021	.33660096 03 1	-.0053	.12084907 06 1	.0889	.00000000 00 0	.0000
002251.000	.33184914 03 1	-.0040	.33679439 03 1	-.0047	.12081425 06 1	.0537	.00000000 00 0	.0000
002351.000	.33186119 03 1	.0018	.33698832 03 1	-.0027	.12077973 06 1	-.0313	.00000000 00 0	.0000
002451.000	.33187323 03 1	.0097	.33718272 03 1	-.0010	.12074552 06 1	-.0986	.00000000 00 0	.0000
002551.000	.33188526 03 1	.0057	.33737760 03 1	-.0099	.12071161 06 1	-.0879	.00000000 00 0	.0000
002651.000	.33189727 03 1	-.0004	.33757295 03 1	-.0072	.12067799 06 1	-.0342	.00000000 00 0	.0000
002751.000	.33190926 03 1	.0015	.33776877 03 1	-.0030	.12064467 06 1	.0244	.00000000 00 0	.0000
002851.000	.33192123 03 1	.0095	.33796504 03 1	-.0032	.12061165 06 1	.0723	.00000000 00 0	.0000
002951.000	.33193320 03 1	.0055	.33816176 03 1	-.0059	.12057891 06 1	.0918	.00000000 00 0	.0000
003051.000	.33194515 03 1	.0015	.33835892 03 1	-.0111	.12054645 06 1	.0459	.00000000 00 0	.0000
003151.000	.33195708 03 1	.0075	.33855652 03 1	-.0047	.12051428 06 1	-.0029	.00000000 00 0	.0000
003251.000	.33196899 03 1	.0075	.33875456 03 1	-.0007	.12048239 06 1	-.0693	.00000000 00 0	.0000
003351.000	.33198089 03 1	.0036	.33895303 03 1	-.0111	.12045077 06 1	-.0918	.00000000 00 0	.0000
003451.000	.33199277 03 1	.0056	.33915191 03 1	.0000	.12041943 06 1	-.0469	.00000000 00 0	.0000
003551.000	.33200464 03 1	.0057	.33935121 03 1	-.0033	.12038835 06 1	.0059	.00000000 00 0	.0000
003651.000	.33201650 03 1	-.0022	.33955093 03 1	-.0110	.12035755 06 1	.0723	.00000000 00 0	.0000
003751.000	.33202834 03 1	.0019	.33975106 03 1	-.0091	.12032700 06 1	.0957	.00000000 00 0	.0000
003851.000	.33204016 03 1	.0060	.33995158 03 1	-.0196	.12029672 06 1	.0557	.00000000 00 0	.0000
003951.000	.33205197 03 1	-.0039	.34015250 03 1	-.0025	.12026670 06 1	-.0029	.00000000 00 0	.0000
004051.000	.33206376 03 1	.0043	.34035382 03 1	-.0018	.12023694 06 1	-.0977	.00000000 00 0	.0000
004151.000	.33207555 03 1	.0005	.34055551 03 1	-.0155	.12020742 06 1	-.1064	.00000000 00 0	.0000

JOBJET ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
004251.000	.33208731 03 1	.0006	.34075759 03 1	-.0195	.12017816 06 1	-.0664	.00000000 00 0	.0000
004351.000	.33209906 03 1	-.0032	.34096006 03 1	-.0120	.12014915 06 1	.0049	.00000000 00 0	.0000
004451.000	.33211080 03 1	.0031	.34116289 03 1	-.0088	.12012039 06 1	.0713	.00000000 00 0	.0000
004551.000	.33212252 03 1	.0033	.34136609 03 1	-.0140	.12009187 06 1	.0938	.00000000 00 0	.0000
004651.000	.33213423 03 1	-.0025	.34156965 03 1	-.0175	.12006359 06 1	.0732	.00000000 00 0	.0000
004751.000	.33214593 03 1	.0178	.34177358 03 1	-.0034	.12003554 06 1	-.0244	.00000000 00 0	.0000
004851.000	.33215761 03 1	.0040	.34197785 03 1	-.0097	.12000774 06 1	-.0986	.00000000 00 0	.0000
004951.000	.33216928 03 1	.0043	.34218249 03 1	-.0083	.11998017 06 1	-.0869	.00000000 00 0	.0000
005051.000	.33218093 03 1	-.0014	.34238746 03 1	-.0153	.11995282 06 1	-.0654	.00000000 00 0	.0000
005151.000	.33219257 03 1	-.0130	.34259278 03 1	-.0086	.11992571 06 1	.0254	.00000000 00 0	.0000
005251.000	.33220420 03 1	-.0007	.34279844 03 1	-.0062	.11989883 06 1	.0508	.00000000 00 0	.0000
005451.000	.33222741 03 1	-.0060	.34321075 03 1	-.0065	.11984573 06 1	.0469	.00000000 00 0	.0000
005551.000	.33223899 03 1	-.0096	.34341740 03 1	-.0131	.11981951 06 1	-.0156	.00000000 00 0	.0000
005651.000	.33225057 03 1	.0007	.34362437 03 1	-.0041	.11979352 06 1	-.0781	.00000000 00 0	.0000
005751.000	.33226213 03 1	.0031	.34383166 03 1	-.0034	.11976773 06 1	-.1162	.00000000 00 0	.0000
005851.000	.33227368 03 1	.0035	.34403927 03 1	-.0030	.11974217 06 1	-.0664	.00000000 00 0	.0000
005951.000	.33228521 03 1	-.0000	.34424719 03 1	-.0029	.11971681 06 1	.0088	.00000000 00 0	.0000
010051.000	.33229673 03 1	-.0016	.34445540 03 1	-.0031	.11969166 06 1	.0762	.00000000 00 0	.0000
010151.000	.33230824 03 1	.0009	.34466393 03 1	-.0096	.11966672 06 1	.0957	.00000000 00 0	.0000
010251.000	.33231974 03 1	-.0007	.34487276 03 1	-.0144	.11964199 06 1	.0684	.00000000 00 0	.0000
010351.000	.33233123 03 1	-.0082	.34508188 03 1	-.0056	.11961746 06 1	-.0234	.00000000 00 0	.0000
010451.000	.33234270 03 1	-.0037	.34529131 03 1	-.0030	.11959313 06 1	-.0752	.00000000 00 0	.0000
010551.000	.33235415 03 1	.0088	.34550102 03 1	.0033	.11956901 06 1	-.0879	.00000000 00 0	.0000
010651.000	.33236560 03 1	-.0027	.34571102 03 1	-.0067	.11954508 06 1	-.0596	.00000000 00 0	.0000
010751.000	.33237704 03 1	-.0142	.34592130 03 1	-.0069	.11952135 06 1	.0137	.00000000 00 0	.0000
010851.000	.33238846 03 1	-.0016	.34613186 03 1	-.0095	.11949781 06 1	.0518	.00000000 00 0	.0000
010951.000	.33239987 03 1	-.0091	.34634270 03 1	-.0103	.11947446 06 1	.0986	.00000000 00 0	.0000
011051.000	.33241127 03 1	-.0525	.34655382 03 1	-.0114	.11945131 06 1	.0537	.00000000 00 0	.0000
011151.000	.33242266 03 1	-.0099	.34676519 03 1	-.0048	.11942834 06 1	-.0205	.00000000 00 0	.0000
011251.000	.33243404 03 1	.0027	.34697685 03 1	-.0085	.11940556 06 1	-.0811	.00000000 00 0	.0000
011351.000	.33244541 03 1	-.0027	.34718877 03 1	-.0104	.11938297 06 1	-.1074	.00000000 00 0	.0000
011451.000	.33245676 03 1	.0479	.34740095 03 1	-.0126	.11936056 06 1	-.0566	.00000000 00 0	.0000
011551.000	.33246810 03 1	.0005	.34761339 03 1	-.0130	.11933833 06 1	.0098	.00000000 00 0	.0000
011651.000	.33247943 03 1	-.0008	.34782609 03 1	-.0097	.11931628 06 1	.0576	.00000000 00 0	.0000
011851.000	.33250206 03 1	.0005	.34825223 03 1	-.0198	.11927272 06 1	.0576	.00000000 00 0	.0000
011951.000	.33251336 03 1	-.0029	.34846568 03 1	-.0113	.11925121 06 1	-.0059	.00000000 00 0	.0000
012151.000	.33253592 03 1	.0085	.34889330 03 1	-.0069	.11920869 06 1	-.1123	.00000000 00 0	.0000
012251.000	.33254719 03 1	-.0028	.34910748 03 1	-.0171	.11918769 06 1	-.0732	.00000000 00 0	.0000
012351.000	.33255844 03 1	-.0140	.34932189 03 1	-.0075	.11916686 06 1	.0186	.00000000 00 0	.0000
012451.000	.33256969 03 1	.0067	.34953653 03 1	-.0061	.11914620 06 1	.0615	.00000000 00 0	.0000
012551.000	.33258092 03 1	.0014	.34975141 03 1	-.0130	.11912570 06 1	.0986	.00000000 00 0	.0000
012651.000	.33259214 03 1	.0002	.34996651 03 1	-.0161	.11910537 06 1	.0508	.00000000 00 0	.0000
012751.000	.33260336 03 1	.0010	.35018184 03 1	-.0094	.11908520 06 1	.0000	.00000000 00 0	.0000
012851.000	.33261456 03 1	-.0023	.35039740 03 1	-.0090	.11906519 06 1	-.0732	.00000000 00 0	.0000
012951.000	.33262576 03 1	.0025	.35061318 03 1	-.0148	.11904534 06 1	-.1045	.00000000 00 0	.0000
013051.000	.33263694 03 1	-.0007	.35082918 03 1	-.0188	.11902565 06 1	-.0547	.00000000 00 0	.0000
013151.000	.33264811 03 1	-.0059	.35104539 03 1	-.0090	.11900612 06 1	.0166	.00000000 00 0	.0000
013251.000	.33265928 03 1	.0050	.35126182 03 1	-.0154	.00000000 00 0	.0000	.00000000 00 0	.0000
013351.000	.33267043 03 1	.0038	.35147847 03 1	-.0221	.00000000 00 0	.0000	.00000000 00 0	.0000
013451.000	.33268158 03 1	-.0074	.35169532 03 1	-.0209	.11894846 06 1	.0420	.00000000 00 0	.0000
013551.000	.33269271 03 1	-.0005	.35191238 03 1	-.0100	.11892954 06 1	-.0205	.00000000 00 0	.0000
013651.000	.33270384 03 1	.0043	.35212964 03 1	-.0133	.11891077 06 1	-.0752	.00000000 00 0	.0000
013751.000	.33271495 03 1	-.0028	.35234711 03 1	-.0207	.11889216 06 1	-.0977	.00000000 00 0	.0000
013851.000	.33272606 03 1	-.0039	.35256478 03 1	-.0244	.11887369 06 1	-.0684	.00000000 00 0	.0000
013951.000	.33273716 03 1	-.0150	.35278265 03 1	-.0123	.11885536 06 1	-.0049	.00000000 00 0	.0000
014051.000	.33274824 03 1	.0019	.35300071 03 1	-.0143	.11883719 06 1	.0732	.00000000 00 0	.0000

JCBJET ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
014151.000	.33275932 03 1	.0048	.35321897 03 1	-.0166	.11881915 06 1	.1074	.00000000 00 0	.0000
014251.000	.33277039 03 1	-.0063	.35343743 03 1	-.0231	.11880126 06 1	.0586	.00000000 00 0	.0000
014351.000	.33278145 03 1	-.0173	.35365606 03 1	-.0137	.11878351 06 1	-.0303	.00000000 00 0	.0000
014451.000	.33279250 03 1	-.0004	.35387490 03 1	-.0125	.11876590 06 1	-.0596	.00000000 00 0	.0000
014551.000	.33280354 03 1	.0006	.35409391 03 1	-.0156	.11874843 06 1	.0508	.00000000 00 0	.0000
014651.000	.33281458 03 1	-.0025	.35431312 03 1	-.0288	.11873109 06 0	3.4844	.00000000 00 0	.0000
014751.000	.33282560 03 1	.0005	.35453250 03 1	-.0162	.00000000 00 0	.0000	.00000000 00 0	.0000
014851.000	.33283661 03 1	.0035	.35475207 03 1	-.0137	.11869683 06 1	.0645	.00000000 00 0	.0000
014951.000	.33284763 03 1	.0025	.35497180 03 1	-.0195	.11867991 06 1	.0928	.00000000 00 0	.0000
015051.000	.33285862 03 1	-.0045	.35519173 03 1	-.0254	.11866311 06 1	.0469	.00000000 00 0	.0000
015151.000	.33286961 03 1	.0025	.35541182 03 1	-.0135	.11864645 06 0	3.4111	.00000000 00 0	.0000
015251.000	.33288059 03 1	.0075	.35563209 03 1	-.0158	.11862991 06 1	-.0752	.00000000 00 0	.0000
015351.000	.33289156 03 1	-.0035	.35585253 03 1	-.0182	.11861351 06 1	-.0908	.00000000 00 0	.0000
015451.000	.33290253 03 1	-.0044	.35607313 03 1	-.0228	.11859724 06 1	-.0371	.00000000 00 0	.0000
015551.000	.33291348 03 1	.0006	.35629391 03 1	-.0116	.11858109 06 1	.0313	.00000000 00 0	.0000
015651.000	.33292443 03 1	-.0023	.35651485 03 1	-.0166	.11856506 06 1	.0938	.00000000 00 0	.0000
020651.000	.33303347 03 1	.0047	.35873300 03 1	-.0148	.11841154 06 1	-.3408	.00000000 00 0	.0000
020751.000	.33304433 03 1	-.0061	.35895565 03 1	-.0135	.11839683 06 1	-.4141	.00000000 00 0	.0000
020851.000	.33305519 03 1	-.0009	.35917845 03 1	-.0163	.11838188 06 1	-.0771	.00000000 00 0	.0000
020951.000	.33306603 03 1	.0002	.35940140 03 1	-.0192	.11836740 06 1	-.0977	.00000000 00 0	.0000
021051.000	.33307687 03 1	-.0046	.35962448 03 1	-.0223	.11835303 06 1	-.0098	.00000000 00 0	.0000
021151.000	.33308770 03 1	.0106	.35984771 03 1	-.0176	.11833877 06 1	.0469	.00000000 00 0	.0000
021251.000	.33309852 03 1	-.0002	.71079253-01 1	-.0149	.11832462 06 1	.0947	.00000000 00 0	.0000
021351.000	.33310934 03 1	-.0110	.29458618 00 1	-.0204	.11831059 06 1	.0732	.00000000 00 0	.0000
021451.000	.33312014 03 1	-.0018	.51822662 00 1	-.0261	.11829665 06 1	.0459	.00000000 00 0	.0000
021551.000	.33313094 03 1	-.0006	.74200439 00 1	-.0159	.11828283 06 1	-.0498	.00000000 00 0	.0000
021651.000	.33314174 03 1	.0087	.96591568 00 1	-.0138	.11826911 06 1	-.0713	.00000000 00 0	.0000
021751.000	.33315253 03 1	.0039	.11899605 01 1	-.0218	.11825550 06 1	-.0576	.00000000 00 0	.0000
021851.000	.33316331 03 1	.0031	.14141388 01 1	-.0180	.11824199 06 1	-.0479	.00000000 00 0	.0000
021951.000	.33317408 03 1	-.0016	.16384392 01 1	-.0123	.11822858 06 1	.0586	.00000000 00 0	.0000
022051.000	.33318484 03 1	.0017	.18628769 01 1	-.0128	.11821528 06 0	3.7432	.00000000 00 0	.0000
022151.000	.33319560 03 1	-.0031	.20874367 01 1	-.0214	.11820207 06 1	.0859	.00000000 00 0	.0000
022251.000	.33320636 03 1	-.0138	.23121262 01 1	-.0160	.11818897 06 1	.0488	.00000000 00 0	.0000
022351.000	.33321710 03 1	.0095	.25369377 01 1	-.0129	.11817597 06 1	-.0479	.00000000 00 0	.0000
022451.000	.33322784 03 1	.0148	.27618713 01 1	-.0138	.11816306 06 1	-.1035	.00000000 00 0	.0000
022551.000	.33323856 03 1	.0041	.29869270 01 1	-.0209	.11815026 06 1	-.0576	.00000000 00 0	.0000
022651.000	.33324929 03 1	-.0126	.32121086 01 1	-.0201	.11813755 06 1	-.0088	.00000000 00 0	.0000
022751.000	.33326000 03 1	-.0033	.34374046 01 1	-.0154	.11812493 06 1	.0654	.00000000 00 0	.0000
022851.000	.33327071 03 1	-.0060	.36628189 01 1	-.0168	.11811242 06 1	.1025	.00000000 00 0	.0000
022951.000	.33328142 03 1	.0014	.38883514 01 1	-.0263	.11809999 06 1	.0859	.00000000 00 0	.0000
023051.000	.33329211 03 1	-.0093	.41139984 01 1	-.0200	.11808766 06 1	.0361	.00000000 00 0	.0000
023551.000	.33334549 03 1	-.0025	.52439269 01 1	-.0160	.11802739 06 0	-3.0322	.00000000 00 0	.0000
023651.000	.33335615 03 1	.0009	.54702377 01 1	-.0203	.11801561 06 1	.3936	.00000000 00 0	.0000
023751.000	.33336679 03 1	-.0037	.56966591 01 1	-.0287	.11800391 06 1	.3906	.00000000 00 0	.0000
023851.000	.33337744 03 1	-.0023	.59231910 01 1	-.0272	.11799230 06 1	.3193	.00000000 00 0	.0000
025051.000	.33350464 03 1	-.0029	.86494178 01 1	-.0175	.11785954 06 1	.0215	.00000000 00 0	.0000
025151.000	.33351520 03 1	.0046	.88772316 01 1	-.0154	.11784899 06 1	.0840	.00000000 00 0	.0000
025251.000	.33352576 03 1	-.0039	.91051292 01 1	-.0193	.11783853 06 1	.1113	.00000000 00 0	.0000
025351.000	.33353631 03 1	-.0144	.93331222 01 1	-.0252	.11782814 06 1	.0420	.00000000 00 0	.0000
025451.000	.33354685 03 1	-.0229	.95612030 01 1	-.0173	.11781782 06 1	-.0234	.00000000 00 0	.0000
025551.000	.33355738 03 1	-.0273	.97893715 01 1	-.0195	.11780758 06 1	-.1035	.00000000 00 0	.0000
025651.000	.33356791 03 1	-.0018	.10017631 02 1	-.0258	.11779742 06 1	-.0576	.00000000 00 0	.0000
025751.000	.33357843 03 1	-.0083	.10245972 02 1	-.0241	.11778732 06 1	-.0244	.00000000 00 0	.0000
025851.000	.33358895 03 1	-.0047	.10474399 02 1	-.0145	.11777730 06 1	.0342	.00000000 00 0	.0000
025951.000	.33359946 03 1	-.0012	.10702915 02 1	-.0151	.11776736 06 1	.1016	.00000000 00 0	.0000
030051.000	.33360996 03 1	-.0116	.10931511 02 1	-.0216	.11775748 06 1	.0771	.00000000 00 0	.0000

JOBJET ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
030151.000	.33362046 03 1	-.0080	.11160191 02 1	-.0263	.11774768 06 1	.0625	.00000000 00 0	.0000
030251.000	.33363095 03 1	-.0045	.11388954 02 1	-.0191	.11773794 06 1	-.0625	.00000000 00 0	.0000
030351.000	.33364143 03 1	.0051	.11617794 02 1	-.0179	.11772828 06 1	-.0781	.00000000 00 0	.0000
030451.000	.33365191 03 1	.0007	.11846722 02 1	-.0249	.11771868 06 1	-.0615	.00000000 00 0	.0000
030551.000	.33366238 03 1	-.0077	.12075722 02 1	-.0239	.11770915 06 1	.0068	.00000000 00 0	.0000
030651.000	.33367285 03 1	.0059	.12304806 02 1	-.0150	.11769969 06 1	.0479	.00000000 00 0	.0000
030751.000	.33368331 03 1	-.0045	.12533962 02 1	-.0221	.11769030 06 1	.1221	.00000000 00 0	.0000
030851.000	.33369377 03 1	-.0029	.12763195 02 1	-.0273	.11768097 06 1	.0488	.00000000 00 0	.0000
030951.000	.33370421 03 1	-.0072	.12992504 02 1	-.0266	.11767171 06 1	.0303	.00000000 00 0	.0000
031051.000	.33371466 03 1	-.0056	.13221893 02 1	-.0180	.11766251 06 1	-.0332	.00000000 00 0	.0000
031151.000	.33372509 03 1	-.0060	.13451351 02 1	-.0175	.11765338 06 1	-.0801	.00000000 00 0	.0000
031251.000	.33373552 03 1	-.0043	.13680885 02 1	-.0250	.11764431 06 1	-.0518	.00000000 00 0	.0000
031351.000	.33374594 03 1	.0014	.13910488 02 1	-.0206	.11763531 06 1	-.0068	.00000000 00 0	.0000
031551.000	.33376677 03 1	-.0013	.14369911 02 1	-.0180	.11761748 06 1	.0957	.00000000 00 0	.0000
031651.000	.33377718 03 1	-.0096	.14599731 02 1	-.0278	.11760866 06 1	.0742	.00000000 00 0	.0000
031751.000	.33378758 03 1	-.0020	.14829620 02 1	-.0197	.11759991 06 1	.0332	.00000000 00 0	.0000
031851.000	.33379798 03 1	-.0003	.15059574 02 1	-.0217	.11759121 06 1	-.0898	.00000000 00 0	.0000
032051.000	.33381874 03 1	-.0049	.15519688 02 1	-.0298	.11757399 06 1	-.0703	.00000000 00 0	.0000
032151.000	.33382912 03 1	-.0012	.15749843 02 1	-.0239	.11756547 06 1	.0088	.00000000 00 0	.0000
032251.000	.33383949 03 1	-.0014	.15980064 02 1	-.0181	.11755701 06 1	.0518	.00000000 00 0	.0000
032351.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11754860 06 1	.0967	.00000000 00 0	.0000
032451.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11754025 06 1	.0469	.00000000 00 0	.0000
032551.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11753196 06 1	-.0215	.00000000 00 0	.0000
032651.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11752372 06 1	-.0840	.00000000 00 0	.0000
032751.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11751554 06 1	-.1025	.00000000 00 0	.0000
032851.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11750741 06 1	-.0547	.00000000 00 0	.0000
032951.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11749934 06 1	.0186	.00000000 00 0	.0000
033051.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11749132 06 1	.0781	.00000000 00 0	.0000
033151.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11748335 06 1	.0654	.00000000 00 0	.0000
033251.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11747544 06 1	.0400	.00000000 00 0	.0000
033351.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11746757 06 1	-.0371	.00000000 00 0	.0000
033451.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11745976 06 1	-.0850	.00000000 00 0	.0000
033551.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11745200 06 1	-.0840	.00000000 00 0	.0000
033651.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11744429 06 1	-.0537	.00000000 00 0	.0000
033751.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11743663 06 1	.0273	.00000000 00 0	.0000
033851.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11742902 06 1	.0791	.00000000 00 0	.0000
033951.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11742146 06 1	.0820	.00000000 00 0	.0000
034051.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11741394 06 1	.0186	.00000000 00 0	.0000
034151.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11740647 06 1	-.0752	.00000000 00 0	.0000
034251.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11739905 06 1	-.1143	.00000000 00 0	.0000
034351.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11739168 06 1	-.0811	.00000000 00 0	.0000
034451.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11738435 06 1	-.0127	.00000000 00 0	.0000
034551.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11737707 06 1	.0293	.00000000 00 0	.0000
034651.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11736983 06 1	.0664	.00000000 00 0	.0000
034751.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11736264 06 1	.0586	.00000000 00 0	.0000
034851.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11735549 06 1	-.0117	.00000000 00 0	.0000
034951.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11734839 06 1	-.0684	.00000000 00 0	.0000
035051.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11734132 06 1	-.1055	.00000000 00 0	.0000
035151.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11733430 06 1	-.0664	.00000000 00 0	.0000
035251.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11732733 06 1	.0107	.00000000 00 0	.0000
035351.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11732039 06 1	.0459	.00000000 00 0	.0000
035451.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11731350 06 1	.0801	.00000000 00 0	.0000
035551.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11730665 06 1	.0332	.00000000 00 0	.0000
035651.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11729983 06 1	-.0537	.00000000 00 0	.0000
035751.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11729306 06 1	-.0996	.00000000 00 0	.0000
035851.000	.00000000 00 0	.0000	.00000000 00 0	.0000	.11728632 06 1	-.0654	.00000000 00 0	.0000

JOBJET ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
035951.000	.33421886 03 1	.0092	.24537949 02 1	-.0373	.11727963 06 1	-.0508	.00000000 00 0	.0000
040051.000	.33422899 03 1	-.0008	.24770161 02 1	-.0194	.11727297 06 1	.0264	.00000000 00 0	.0000
040151.000	.33423912 03 1	.0152	.25002407 02 1	-.0197	.11726635 06 1	.0850	.00000000 00 0	.0000
040251.000	.33424924 03 1	.0012	.25234699 02 1	-.0259	.11725977 06 1	.0664	.00000000 00 0	.0000
040351.000	.33425936 03 1	.0112	.25467029 02 1	-.0302	.11725323 06 1	.0313	.00000000 00 0	.0000
040451.000	.33426946 03 1	.0072	.25699402 02 1	-.0165	.11724672 06 1	-.1016	.00000000 00 0	.0000
040551.000	.33427957 03 1	.0072	.25931808 02 1	-.0209	.11724025 06 1	-.0898	.00000000 00 0	.0000
040651.000	.33428966 03 1	.0073	.26164257 02 1	-.0293	.11723381 06 1	-.0928	.00000000 00 0	.0000
040751.000	.33429975 03 1	-.0027	.26396740 02 1	-.0277	.11722741 06 1	-.0518	.00000000 00 0	.0000
040851.000	.33430983 03 1	.0094	.26629261 02 1	-.0182	.11722105 06 1	.0332	.00000000 00 0	.0000
040951.000	.33431991 03 1	.0014	.26861816 02 1	-.0187	.11721471 06 1	.0654	.00000000 00 0	.0000
041051.000	.33432998 03 1	.0035	.27094410 02 1	-.0273	.11720841 06 1	.0449	.00000000 00 0	.0000
041151.000	.33434004 03 1	.0016	.27327041 02 1	-.0239	.11720215 06 1	.0078	.00000000 00 0	.0000
041251.000	.33435010 03 1	.0077	.27559707 02 1	-.0185	.11719592 06 1	-.0801	.00000000 00 0	.0000
041351.000	.33436015 03 1	.0058	.27792404 02 1	-.0172	.11718972 06 1	-.0811	.00000000 00 0	.0000
041451.000	.33437020 03 1	-.0041	.28025139 02 1	-.0278	.11718355 06 1	-.0752	.00000000 00 0	.0000
041551.000	.33438023 03 1	.0080	.28257900 02 1	-.0246	.11717742 06 1	-.0205	.00000000 00 0	.0000
041651.000	.33439026 03 1	.0181	.28490704 02 1	-.0173	.11717131 06 1	.0439	.00000000 00 0	.0000
041751.000	.33440029 03 1	.0002	.28723537 02 1	-.0201	.11716524 06 1	.0361	.00000000 00 0	.0000
041851.000	.33441030 03 1	-.0037	.28956402 02 1	-.0289	.11715920 06 1	.0381	.00000000 00 0	.0000
041951.000	.33442031 03 1	.0025	.29189301 02 1	-.0197	.11715319 06 1	-.0303	.00000000 00 0	.0000
042051.000	.33443031 03 1	.0006	.29422226 02 1	-.0166	.11714721 06 1	-.0879	.00000000 00 0	.0000
042151.000	.33444031 03 1	.0048	.29655185 02 1	-.0255	.11714125 06 1	-.1143	.00000000 00 0	.0000
042251.000	.33445030 03 1	-.0051	.29888176 02 1	-.0305	.11713533 06 1	-.0703	.00000000 00 0	.0000
042351.000	.33446029 03 1	.0091	.30121193 02 1	-.0194	.11712943 06 1	.0049	.00000000 00 0	.0000
042451.000	.33447026 03 1	.0053	.30354240 02 1	-.0184	.11712357 06 1	.0527	.00000000 00 0	.0000
042551.000	.33448023 03 1	.0035	.30587318 02 1	-.0194	.11711773 06 1	.0732	.00000000 00 0	.0000
042651.000	.33449019 03 1	.0037	.30820427 02 1	-.0245	.11711191 06 1	.0254	.00000000 00 0	.0000
042751.000	.33450015 03 1	-.0001	.31053562 02 1	-.0175	.11710613 06 1	-.0674	.00000000 00 0	.0000
042851.000	.33451010 03 1	.0121	.31286728 02 1	-.0207	.11710037 06 1	-.0889	.00000000 00 0	.0000
042951.000	.33452005 03 1	.0023	.31519916 02 1	-.0358	.11709463 06 1	-.0957	.00000000 00 0	.0000
043051.000	.33452998 03 1	.0145	.31753135 02 1	-.0249	.11708893 06 1	-.0273	.00000000 00 0	.0000
043151.000	.33453991 03 1	.0127	.31986377 02 1	-.0221	.11708324 06 1	.0557	.00000000 00 0	.0000
043251.000	.33454983 03 1	.0030	.32219646 02 1	-.0213	.11707759 06 1	.0723	.00000000 00 0	.0000
043351.000	.33455974 03 1	-.0068	.32452945 02 1	-.0305	.11707195 06 1	.0469	.00000000 00 0	.0000
043451.000	.33456965 03 1	-.0005	.32686268 02 1	-.0218	.11706634 06 1	-.0049	.00000000 00 0	.0000
043551.000	.33457955 03 1	.0018	.32919613 02 1	-.0211	.11706076 06 1	-.0801	.00000000 00 0	.0000
043651.000	.33458944 03 1	.0080	.33152984 02 1	-.0184	.11705520 06 1	-.1182	.00000000 00 0	.0000
043751.000	.33459932 03 1	-.0017	.33386379 02 1	-.0257	.11704966 06 1	-.0791	.00000000 00 0	.0000
043851.000	.33460920 03 1	-.0114	.33619796 02 1	-.0150	.11704414 06 1	-.0020	.00000000 00 0	.0000
043951.000	.33461908 03 1	.0069	.33853237 02 1	-.0184	.11703865 06 1	.0518	.00000000 00 0	.0000
044051.000	.33462894 03 1	-.0028	.34086704 02 1	-.0218	.11703317 06 1	.0635	.00000000 00 0	.0000
044151.000	.33463880 03 1	-.0125	.34320194 02 1	-.0232	.11702772 06 1	.0146	.00000000 00 0	.0000
044251.000	.33464865 03 1	-.0221	.34553703 02 1	-.0166	.11702229 06 1	-.0156	.00000000 00 0	.0000
044351.000	.33465849 03 1	-.0318	.34787235 02 1	-.0160	.11701688 06 1	-.0859	.00000000 00 0	.0000
044451.000	.33466832 03 1	.0085	.35020790 02 1	-.0176	.11701150 06 1	-.1182	.00000000 00 0	.0000
044551.000	.33467815 03 1	.0029	.35254364 02 1	-.0210	.11700613 06 1	-.0508	.00000000 00 0	.0000
044651.000	.33468797 03 1	-.0068	.35487961 02 1	-.0125	.11700078 06 1	.0195	.00000000 00 0	.0000
044751.000	.33469778 03 1	.0076	.35721580 02 1	-.0141	.11699545 06 1	.0879	.00000000 00 0	.0000
044951.000	.33471739 03 1	.0163	.36188873 02 1	-.0292	.11698485 06 0	110.0713	.00000000 00 0	.0000
045051.000	.33472718 03 1	.0067	.36422546 02 1	-.0208	.11697957 06 0	96.7256	.00000000 00 0	.0000
045151.000	.33473696 03 1	.0091	.36656242 02 1	-.0184	.11697432 06 0	93.7998	.00000000 00 0	.0000
050351.000	.33485376 03 1	.0046	.39461948 02 1	-.0249	.00000000 00 0	.0000	.00000000 00 0	.0000
050451.000	.33486345 03 1	.0111	.39695862 02 1	-.0307	.11690759 06 1	.0313	.00000000 00 0	.0000
050551.000	.33487312 03 1	-.0004	.39929786 02 1	-.0225	.11690255 06 1	-.0283	.00000000 00 0	.0000
050651.000	.33488279 03 1	.0560	.00000000 00 0	.0000	.11689752 06 1	-.0801	.00000000 00 0	.0000

JOBJET ITERATION 3

TIME	EL/DEC		AZ/HA		C1/C2/C3/R.		RANGE	
050751.000	.33489245 03 1	.0047	.40397686 02 1	-.0262	.11689250 06 1	-.0840	.00000000 00 0	.0000
050851.000	.33490210 03 1	-.0047	.40631653 02 1	-.0361	.11688750 06 1	.0000	.00000000 00 0	.0000
050951.000	.33491175 03 1	.0038	.40865635 02 1	-.0179	.11688251 06 1	.0303	.00000000 00 0	.0000
051051.000	.33492138 03 1	.0064	.41099632 02 1	-.0178	.11687753 06 1	.0908	.00000000 00 0	.0000
051151.000	.33493101 03 1	.0090	.41333641 02 1	-.0317	.11687256 06 1	.0996	.00000000 00 0	.0000
051251.000	.33494063 03 1	-.0024	.41567661 02 1	-.0236	.11686760 06 1	.0371	.00000000 00 0	.0000
051351.000	.33495024 03 1	.0162	.41801697 02 1	-.0195	.11686265 06 1	-.0156	.00000000 00 0	.0000
051451.000	.33495985 03 1	.0048	.42035740 02 1	-.0194	.11685772 06 1	-.0781	.00000000 00 0	.0000
051551.000	.33496944 03 1	.0254	.42269798 02 1	-.0414	.11685279 06 1	-.0527	.00000000 00 0	.0000
051651.000	.33497902 03 1	.0060	.42503864 02 1	-.0293	.11684787 06 1	.0049	.00000000 00 0	.0000
051751.000	.33498861 03 1	.0126	.42737941 02 1	-.0213	.11684297 06 1	.0723	.00000000 00 0	.0000
051851.000	.33499818 03 1	-.0007	.42972030 02 1	-.0252	.11683807 06 1	.0908	.00000000 00 0	.0000
051951.000	.33500774 03 1	.0039	.43206131 02 1	-.0492	.11683318 06 1	.0605	.00000000 00 0	.0000
052051.000	.33501729 03 1	.0046	.43440242 02 1	-.0272	.11682830 06 1	.0020	.00000000 00 0	.0000
052151.000	.33502684 03 1	-.0007	.43674362 02 1	-.0211	.11682342 06 1	-.0654	.00000000 00 0	.0000
053051.000	.33511237 03 1	.0077	.45781856 02 1	-.0334	.11677989 06 1	-.0879	.00000000 00 0	.0000
053151.000	.33512183 03 1	-.0015	.46016064 02 1	-.0254	.11677508 06 1	-.0215	.00000000 00 0	.0000
053251.000	.33513128 03 1	.0153	.46250274 02 1	-.0255	.11677028 06 1	.0615	.00000000 00 0	.0000
054251.000	.33522531 03 1	.0135	.48592762 02 1	-.0363	.11672247 06 1	.0273	.00000000 00 0	.0000
054351.000	.33523467 03 1	.0185	.48827041 02 1	-.0164	.11671771 06 1	-.0488	.00000000 00 0	.0000
054451.000	.33524401 03 1	.0313	.49061325 02 1	-.0226	.11671294 06 1	-.0645	.00000000 00 0	.0000
054551.000	.33525335 03 1	.0123	.49295612 02 1	-.0187	.11670818 06 1	-.0635	.00000000 00 0	.0000
054651.000	.33526268 03 1	.0032	.49529903 02 1	-.0188	.11670342 06 1	-.0420	.00000000 00 0	.0000
054751.000	.33527200 03 1	.0061	.49764202 02 1	-.0209	.11669866 06 1	.0566	.00000000 00 0	.0000
054851.000	.33528131 03 1	.0070	.49998501 02 1	-.0230	.11669390 06 1	.1162	.00000000 00 0	.0000
054951.000	.33529061 03 1	.0240	.50232799 02 1	-.0271	.11668914 06 1	.0547	.00000000 00 0	.0000
055051.000	.33529989 03 1	.0169	.50467105 02 1	-.0193	.11668439 06 1	.0332	.00000000 00 0	.0000
055151.000	.33530917 03 1	.0139	.50701416 02 1	-.0194	.11667963 06 1	-.0684	.00000000 00 0	.0000
055251.000	.33531845 03 1	.0089	.50935730 02 1	-.0195	.11667487 06 1	-.0498	.00000000 00 0	.0000
055351.000	.33532771 03 1	.0019	.51170044 02 1	-.0296	.11667011 06 1	-.0508	.00000000 00 0	.0000
055451.000	.33533696 03 1	.0358	.00000000 00 0	.0000	.11666535 06 1	-.0107	.00000000 00 0	.0000
055551.000	.33534621 03 1	.0099	.51638683 02 1	-.0199	.11666059 06 1	.0508	.00000000 00 0	.0000
055651.000	.33535545 03 1	.0049	.51873004 02 1	-.0240	.11665583 06 1	.1133	.00000000 00 0	.0000
055751.000	.33536467 03 1	-.0101	.52107330 02 1	-.0321	.11665106 06 1	.0566	.00000000 00 0	.0000
055851.000	.33537389 03 1	.0130	.52341656 02 1	-.0222	.11664630 06 1	-.0176	.00000000 00 0	.0000
055951.000	.33538309 03 1	.0180	.52575985 02 1	-.0184	.11664153 06 1	-.0693	.00000000 00 0	.0000
060051.000	.33539229 03 1	.0071	.52810310 02 1	-.0225	.11663676 06 1	-.0791	.00000000 00 0	.0000
060151.000	.33540147 03 1	-.0018	.53044640 02 1	-.0186	.11663199 06 1	-.0469	.00000000 00 0	.0000
060251.000	.33541065 03 1	-.0048	.53278972 02 1	-.0227	.11662721 06 1	.0098	.00000000 00 0	.0000
060351.000	.33541982 03 1	.0083	.53513306 02 1	-.0209	.11662243 06 1	.0469	.00000000 00 0	.0000
060451.000	.33542898 03 1	.0134	.53747638 02 1	-.0270	.11661765 06 1	.1094	.00000000 00 0	.0000
060551.000	.33543812 03 1	.0026	.53981972 02 1	-.0231	.11661287 06 1	.0342	.00000000 00 0	.0000
060651.000	.33544726 03 1	.0057	.54216308 02 1	-.0152	.11660808 06 1	-.0166	.00000000 00 0	.0000
060751.000	.33545639 03 1	.0068	.54450642 02 1	-.0173	.11660328 06 1	-.1045	.00000000 00 0	.0000
060851.000	.33546551 03 1	.0120	.54684978 02 1	-.0255	.11659849 06 1	-.0674	.00000000 00 0	.0000
060951.000	.33547462 03 1	.0051	.54919311 02 1	-.0155	.11659368 06 1	-.0264	.00000000 00 0	.0000
061051.000	.33548372 03 1	.0023	.55153644 02 1	-.0156	.11658888 06 1	.0801	.00000000 00 0	.0000
061151.000	.33549281 03 1	.0055	.55387981 02 1	-.0238	.11658407 06 1	.0898	.00000000 00 0	.0000
061251.000	.33550189 03 1	-.0033	.55622314 02 1	-.0199	.11657925 06 1	.0869	.00000000 00 0	.0000
061351.000	.33551096 03 1	.0059	.55856647 02 1	-.0200	.11657443 06 1	-.0117	.00000000 00 0	.0000
061451.000	.33552002 03 1	.0131	.56090976 02 1	-.0201	.11656960 06 1	-.0664	.00000000 00 0	.0000
061551.000	.33552907 03 1	-.0117	.56325305 02 1	-.0221	.11656477 06 1	-.0732	.00000000 00 0	.0000
061651.000	.33553811 03 1	.0016	.56559635 02 1	-.0202	.11655993 06 1	-.0547	.00000000 00 0	.0000
061751.000	.33554714 03 1	.0168	.56793964 02 1	-.0204	.11655509 06 1	.0488	.00000000 00 0	.0000
061851.000	.33555616 03 1	.0081	.57028289 02 1	-.0184	.11655024 06 1	.0791	.00000000 00 0	.0000
061951.000	.33556516 03 1	.0013	.57262615 02 1	-.0185	.11654538 06 1	.0781	.00000000 00 0	.0000

ITERATION 3 OPTION 0 EPOCH 62/04/23 210419.000 CLOCK 182420 LIGHT TIME ON KEYS 110620140770

STATION	TYPE	N	SIGMA MEAN	WEIGHT SK	RMS NOISE	SKEW EXCESS	2ND MOMENT S	S1 S2
JOBJET	C2	377	.78417636-01 -.15101749-02	.10000000 01 .00000000 00	.78432177-01 .77651537-01	.41837613 02 .49114225 01	.61516064-02 .10000000 01	.00000000 00 .00000000 00
OOMJET	HA	35	.90436313-02 -.11512211-02	.10000000 01 .00000000 00	.91166099-02 .22313152-01	.67605452 00 .38221076 01	.83112577-04 .10000000 01	.00000000 00 .00000000 00
OOMJET	DEC	35	.71416538-02 -.15773228-02	.10000000 01 .00000000 00	.73137655-02 .17503270-01	-.19311085 00 .37276283 01	.53491166-04 .10000000 01	.00000000 00 .00000000 00
JETMTS	F2	703	.63886033 00 -.46619398-02	.10000000 01 .00000000 00	.63887734 00 .63443132 00	-.31804616 03 -.81928056 00	.40816426 00 .10000000 01	.00000000 00 .00000000 00
JOBJET	HA	740	.20347438-01 -.17103298-02	.10000000 01 .00000000 00	.20419193-01 .68756893-01	-.17099729 00 .72922705 01	.41694346-03 .10000000 01	.00000000 00 .00000000 00
JOBJET	DEC	719	.11883145-01 -.15409471-02	.10000000 01 .00000000 00	.11982640-01 .18113227-01	-.58069915 00 .37155577 01	.14358366-03 .10000000 01	.00000000 00 .00000000 00

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4. *Space Flight Operation Plan, Ranger 4, EPD-74,* Jet Propulsion Laboratory, Pasadena, March 12, 1962.

5. *Ranger 4 Tracking Operations Memorandum 332-11,* EPD-137, Jet Propulsion Laboratory, Pasadena, March 8, 1963.

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